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MAY 1989
VOLUME 8, NUMBER 1

ALL 8-BIT ATARI: XL XE

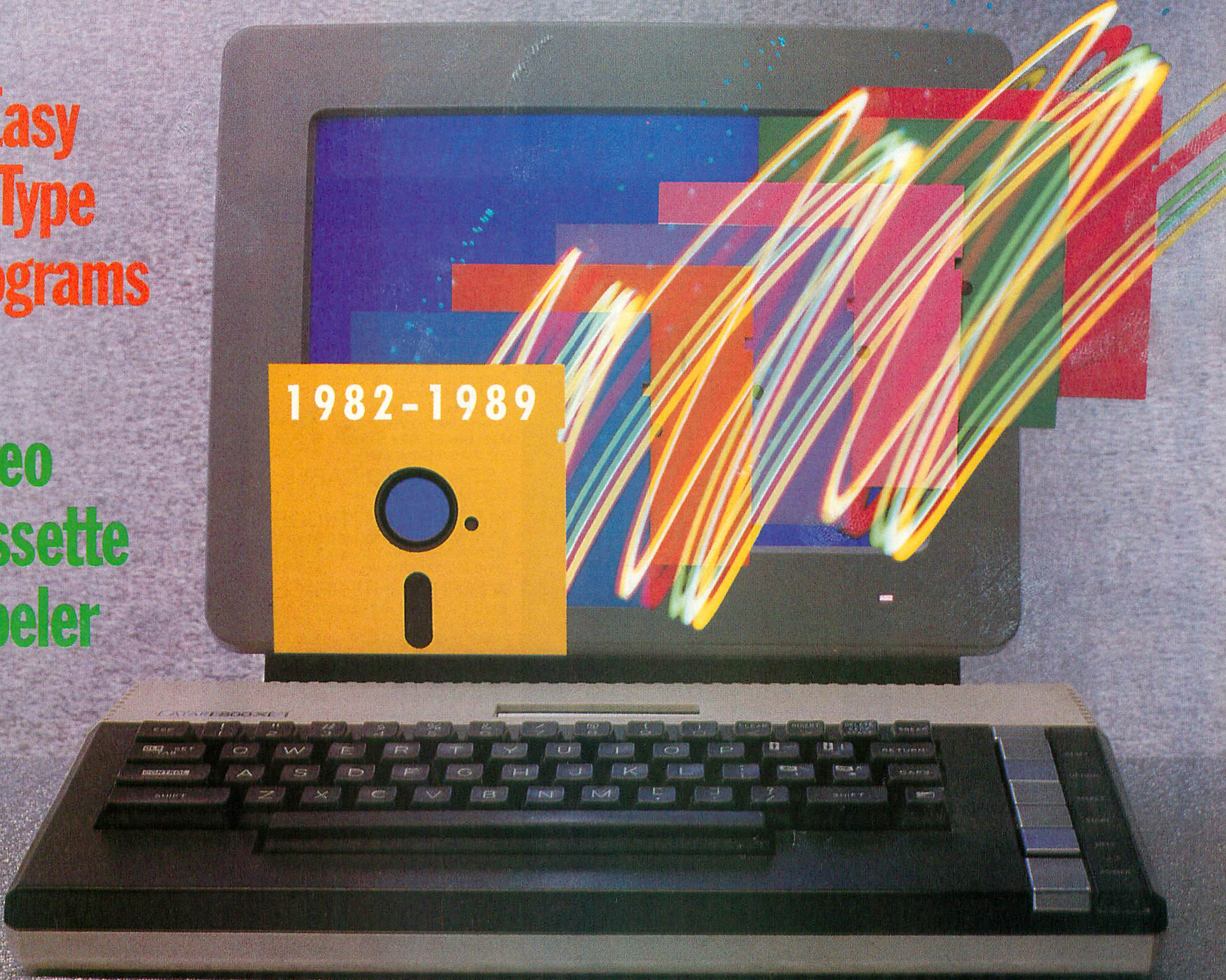
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SEVENTH ANNIVERSARY

5 Easy To Type Programs

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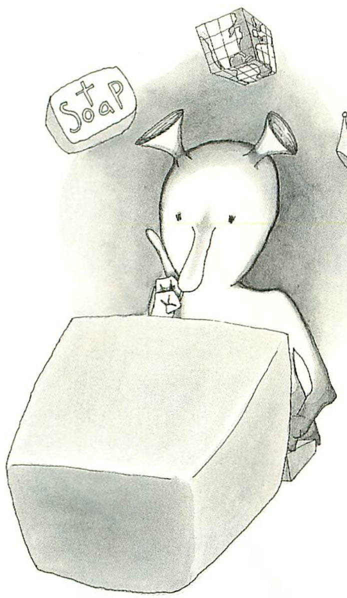


Disk Bonus:
Talking Programs Made Easy



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FEATURES

MAY 1989, VOL. 8, NO. 1

DEPARTMENTS

SOFTWARE LIBRARY **5 Easy-To-Type 8-Bit Listings**

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'89 ANTIC AWARDS

For Atarian Achievement

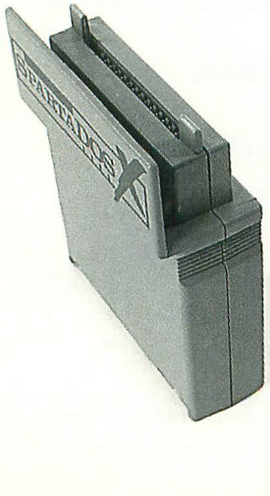
For the 1989 Antic Awards, this magazine is proud to honor two of the energetic, imaginative companies that continue to lead the way in creating breakthrough products for the 8-bit Atari.

ICD

The March 1989 **Antic** cover featured ICD's **SpartaDOS X** slugging it out with Atari's own DOS-XE for the new 8-bit operating system championship. Despite many impressive strengths in the "official" Atari entry, our review concluded that third-party ICD's SpartaDOS X is the "ultimate" operating system for power users and hard disk owners.

SpartaDOS X ($79.95) comes on a 64K piggyback cartridge that's compatible with the Atari 800 as well as the XL/XE models. The **Antic** review also described SpartaDOS X as "the most advanced product released for the 8-bit Atari since ICD's own Multi I/O interface" — which won ICD an Antic Award in 1987.

1220 Rock Street, Rockford, IL 61101. (815) 968-2228.





INNOVATIVE CONCEPTS

Innovative Concepts' **Easy-Scan** image scanner shared the **Antic** October 1988 Cover with ICD's 8-bit/ST FA-ST hard disk. Easy-Scan ($79.95) uses a pair of fiber-optic light pipes to copy images from paper into your Atari's memory with a surprisingly accurate 256-level gray scale.

Innovative Concepts has established a solid reputation as a small company with an *extensive* line of 8-bit memory upgrades and related hardware enhancements. On the same day that these awards were being prepared, a box arrived at **Antic** with Innovative Concepts' three latest products—RAMdrive + XE-GM2, a 192K memory upgrade for the Atari XE Game System; RAM-Aid, a cold-start device for Ataris with at least 128K; and the XF35 Kit which converts the Atari XF551 disk drive to a 3.5-inch drive with 720K capacity.

31172 Shawn Drive, Warren, MI 48093. (313) 293-0730.

ANTIC'S SEVENTH ANNIVERSARY



With this anniversary issue, **Antic** completes seven full years of publishing the bestselling magazine for Atari 8-bit computer users. Now as we enter our eighth year of continuous service to the 8-bit community, **Antic** is proud to still be one of the hardcore independent providers who have stuck by Atari users through good times and bad.

The Atari 800, XL and XE continue to stand alone as the best 8-bit computers ever made. As changing market forces led to dwindling commercial support for the 8-bit line, **Antic** has tried to fill the gaps as much as our resources would allow.

We have reactivated and expanded the Antic Arcade Catalog of 8-bit products, bringing back many excellent commercial products that had been allowed to go out of print.

On CompuServe's ANTIC ONLINE, we post many of our recent programs for your personal downloading, without any extra hourly surcharges. The ANTIC ONLINE INDEX gives you a high-powered database to look up any **Antic** article, review, or program from our seven years of publication. In fact, many of the complete articles and reviews are available in the Index for your downloading.

Perhaps most significant of all is that the price of the monthly Antic Disk has been cut by nearly half of the original cost. Both sides of the Antic Disk are packed full of outstanding 8-bit software. Each month's disk features Super Disk Bonus programs that are too large and complex to be printed as type-in listings.

Today's Antic Disk is an unbeatable Atari software value at $59.95 for 12 issues of the magazine plus disk—only $5 apiece. You can subscribe—or upgrade your current non-disk subscription—by mail, or by phoning toll-free to the Antic Disk Desk at **(800) 234-7001** with your Visa or MasterCard order.

Single disks can also be ordered from the Antic Disk Desk for only $5.95 (plus $2 for shipping and handling) and will be shipped to you within 24 hours after receiving your Visa or MasterCard order. Or mail a $5.95 check (plus $2 shipping and handling) to Antic Disk Desk, 544 Second Street, San Francisco, CA 94107. And see the back-issues ad in this magazine for additional savings on the prior magazines and disks you need to complete your Antic Library.

Let's keep working together for another year (**Antic's** eighth) of overcoming the nay-saying of those who want to write off the Atari 8-bit computers. We'll continue doing our part. It's important that you do your part by buying 8-bit products from the Arcade Catalog and subscribing to the Antic Disk.

Nat Friedland

Nat Friedland
Editor, Antic

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The **SUPER ARCHIVER** is so **POWERFUL** that only programs we know that can't be copied are the newer **ELECTRONIC ARTS** and **SYNFILE/SYNCALC** (34 FULL sectors/track). If you want it **ALL** . . . buy the **"BIT-WRITER"!** also . . . then you'll **be able to copy** even these programs! Only $69.95 plus $4 S/H/I.

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The Super Archiver **"BIT-WRITER"!** is capable of **duplicating even** the "uncopyable" **EA** and **SYN** series which employ 34 FULL sectors/tracks. **"BIT-WRITER"!** is capable of reproducing these and **FUTURE** protection schemes of non physicially damaged disks. **PLUG-IN** circuit boards and 4 **simple** solder connections. The **"SUPER ARCHIVER** with **"BIT-WRITER"!** is the ultimate **PROGRAMMING/COPYING** device for Atari 1050's. **EXACT DUPLICATES** of originals are made! Copies run on **ANY** drive. Must be used with Super Archiver. Only $79.95 plus $4 S/H/I.

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- **ULTRA** Speed is toggleable
- Boot directly from **RAMDISK**
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- Built in **RAMDISK** configuration editor (1-9)
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- Toggle **SCREEN OFF** for up to 40% increase of processing speed.
- Toggle internal **BASIC**
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- Entire **MEMORY** test that pinpoints defective **RAM** chip
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The XF551 Atari drive is a fine product with one major flaw...it writes to side TWO of your flopping disks **BACKWARDS**. This causes read/write incompatibility problems with all other single sides drives made for Atari such as Indus, Trak, Rana, Percom, Astra, Atari 1050, Atari 810, etc. Add the **XF551 ENHANCER** to the new XF551 drive and your problems are over! This device will restore 100% compatibility while retaining original design qualities of Atari's super new drive. The **XF551 ENHANCER** is a **MUST** for all XF551 Owners. Installation is simple. Only $29.95 plus $4 S/H/I.

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Easy to use, very powerful, and **NO ADDITIONAL HARDWARE** required! Works with TV or Monitor! This **"DISK ONLY"** 80 Column Word-Processor is simple to use while offering numerous features such as:

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One expert has compared 40 domestic and foreign word-processors and concluded that the RICHMANS 80 Column Word-Processor is the best! Only $39.95 plus $4 S/H/I. (64K required).

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The **"QUINTOPUS!"** is an inexpensive device that provides a tremendous amount of convenience while eliminating the problems associated with the endless "daisy-chaining" of peripherals (eg: drives, interfaces, printers, modems, cassettes, etc.). The **"QUINTOPUS!"** is an I/O port expander that converts a single I/O output/input into five additional outputs/inputs. Instead of daisy-chaining all of your peripherals (which often times results in passing a signal through 30 feet or more of cable!), the **"QUINTOPUS!"** allows each device to be connected directly to the computers through only three or four feet of cable. This is particularly useful when attempting to use ULTRASPEED or WARPSPEED data transfer rates. The **"QUINTOPUS!"** also provides the "extra" I/O ports often needed to connect devices not having daisy-chaining capabilities. Cable resistance and compacitance are greatly reduced thereby significantly improving the opportunity of accurate data transfers! Only $39.95 plus $4 S/H/I.

$59.95 THE "QUINTOPUS!" $59.95
(with SWITCHABLE PORTS!)

This Deluxe version of the **"QUINTOPUS!"** has all of the above features with the additional benefits of **two SWITCHABLE PORTS!** This means you can connect two computers to one printer or two printers to one computer; you can switch in a computer/printer combination and while you're printing out a long document, switch in a second computer to access a modem, disk drive, cassette deck, etc! Switch multiple combinations of peripherals or computers without the hassel or re-arranging I/O cables . . . . simply flip a switch! Only $59.95 plus $4 S/H/I.

LIMITED SPECIALS!

Previously we listed these products under our **FIRESALE** ad but many of our customers feared that the software items might be smoke or water damaged. They're NOT! All of the items listed below are BRAND NEW...only their literature or packing may have slight cosmetic imperfections. All items are fully warrantied! Quantities are limited! No rainchecks!

	NORMALLY	LIMITED SPECIALS
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4. ULTRA MENU/DOS	30	19
5. DISKCRACKER (Newest version)	50	19
6. ELECTRONIC PHANTOM SECTOR MAKER DELUXE	60	35
7. RICHMANS 80 COLUMN WORD PROCESSOR	60	29
8. MIRACLE (Disk only Version of Impossible)	70	19
9. IMPOSSIBLE for 800 or 800XL	150	69
10. XL MATE	30	15
11. COMPACTOR	30	15
12. KLONE II (Generic HAPPY backup)	100	75
13. SILENCER	30	19
14. BLACK PATCH (MASTER)	50	25
15. BLACK PATCH DATA DISKS 1 & 2	20	10

*Order 5 items or more and we will pay the freight!

These SPECIALS are for C.S.S. customers only - NO DEALER DISCOUNTS - NO RAINCHECKS - LIMITED QUANTITIES

BRILLIANT MISTAKE

In my article on *Atari Brain Transplants* (**Antic**, November 1988) I offered to send a copy of the Public Domain 800 Upgrade by David Byrd to anyone who sent me a self-addressed, stamped envelope.

Unfortunately, there was an error in the initial mailing. A reader, Elmo Ferguson, pointed out the error. I have since sent corrections to all the readers who requested information, and all future mailings will be correct. I apologize for any inconvenience to the readers. Incidentally, I mailed out over 80 copies of the upgrade during 1988.

Lee Brilliant, M.D.
Granada Hills, CA

*Readers interested in this upgrade should send a self-addressed, stamped envelope to Dr. Brilliant c/o **Antic** Magazine, 544 Second Street, San Francisco, CA 94107.*—ANTIC ED

VARIABLE SPEED

Lately I notice that quite a few BASIC programmers replace commonly used constants with variables (C1, C2, etc.) claiming that it increases execution speed. This is incorrect. Such a practice can save substantial amounts of memory in large programs, but actually causes them to run slightly *slower*. A simple timing loop will verify this. I just wanted to set the record straight—keep those 8-bit programs coming!

James Hague
Richardson, TX

***Antic** Technical Editor Charles Jackson checked this out. He wrote a simple BASIC program that performed many mathematical computations. One version used variables. The second version used constants and ran about 0.12 percent faster. Another problem with using variables is that they can make a program very hard to follow, unless descriptive variable names are used.*
—ANTIC ED

FLOPPED FLOPPIES?

I think I have several bad disks. Could you publish a disk checker or tell me where I could buy one? The disks in question are all 3M DS, DD, RH soft sector, and the box says "for use with standard IBM PC/XT." Are these the correct disks for my system?

Mel Walker
Philadelphia, PA

*The Antic Arcade Catalog carries two programs that can help. If you have an Atari 1050 drive, try **Sherlock 1050** (APO 155, $19). Otherwise, use **Disk Scanner** (APO 145, $15.95).*

*Basically, any 5¼ inch floppy disk should work with your system, **but you must format the disk, first**. Boot with a disk that has DOS on it, and type [DOS] to go to the DOS menu. (Any Antic Monthly Disk has DOS on it. Simply choose selection 1 from the main menu.)*

Be sure to remove your DOS disk before formatting, and insert the disk to be formatted. Formatting will permanently destroy all the data already on the disk, so be careful! Type [I] to format the disk, and follow the prompts. It's also a good idea to Write DOS Files to Disk after formatting (option H). If you don't get any error messages in the process, your disks should be OK.—ANTIC ED

FAILING MEMORY?

My 800XL seems to be suffering loss of memory. The Memory Test shows that I have 8K of RAM missing. I don't think I can RUN or even LOAD software requiring 48K. Is there a way to recover that lost RAM, or does my computer need servicing?

Gregory Pogonowski
Rancho Santa
Margarita, CA

No, your 800XL is fine. Your XL's built-in BASIC is using that 8K of memory. The next time you use the computer, try this: First, unplug your disk drives from the computer (DOS takes up a certain amount of space, too). Next, hold down the [OPTION] key (this disables BASIC) and turn on your Atari. Run the Memory Test again and watch that 8K reappear!

As you might guess, many commercial programs should be booted with [OPTION] held down, to free that memory and disable BASIC for programs that don't need it.—ANTIC ED

'STEREO" AMP

The *Antic Music Processor* (December 1988 Super Disk Bonus) is truly one of the most addictive computer programs I have worked with.

To hear my songs with a little more fidelity, I used a coaxial cable to attach my Atari 800XL to my stereo-equipped VCR. The audio signal from my VCR goes to my stereo amplifier. The result was a very satisfying psuedo-stereo sound and I was able to make cassette recordings of the songs directly from my tape deck.

Now, my only wish is for a way to play a "Musical Revue" of all the song files on a disk.

David Warren
Poway, CA

It would be great to have a way to play all the songs on a disk, or even to loop songs to play over and over. We'll add this to the list of good ideas we're passing on to Steven Lashower, the program's author.
—ANTIC ED

***Antic** welcomes your feedback, but we regret that the large volume of mail makes it impossible for the Editors to reply to everyone. Although we do respond to as much reader correspondence as time permits, our highest priority must be to publish I/O answers to questions that are meaningful to a substantial number of readers.*

Send letters to: Antic I/O Board, 544 Second Street, San Francisco, CA 94107.

New 8-Bit Power Tools

Quintopus!, XF551 Enhancer, Atari View 8, Review by Matthew Ratcliff

QUINTOPUS! LETS ME CONNECT MY TWO ATARI COMPUTERS TO THE SAME SET OF PERIPHERALS

QUINTOPUS!

Quintopus! is an SIO port expander for Atari 8-bit computers. It provides up to six (Computer Software Services added an extra port, but didn't change the name) SIO ports for attaching disk drives, modem or printer interfaces, or even multiple computers. Using Quintopus! can minimize cable tangles, improve data transfer reliability and even deliver a simple, but functional, "multi-user" environment.

If you have more than two "dead end" devices in your system, such as an Atari XM301 modem and ICD's Printer Connection, for example, cable juggling can be a real hassle.

Quintopus! eliminates this problem. It can be connected directly to your Atari computer, and all other peripherals may then be attached to the other ports on the Quintopus!. If you have more than five peripherals, they can be daisy-chained in the usual manner.

Connecting your system this way will shorten the total cable length between your computer and each peripheral. This can improve the reliability of communications between the devices and computer, since there are fewer linkages and less "voltage drop" along the way.

This is especially useful for such devices as the Atari XM301 modem and ICD's Printer Connection, which also get their power from the computer. Ideally, they should be the first devices in the "daisy chain" of peripherals, for the most reliable operation. Quintopus! makes this possible.

I reviewed the switchable version of Quintopus!, which provides some "multi-user" capabilities. This model has two toggle switches and two associated connectors, marked with white dots. The most obvious application is to connect an Atari computer to each switched port. When the associated switch is on, that computer has full access to the disk drives, modem, printer and other devices you may have attached.

You can have *both* toggle switches on at the same time, although this isn't recommended. Everything will work fine, until both users try to access a peripheral at the same time (and it need not be the same peripheral). Neither computer is "aware" of the other's presence, and each assumes it has total control of the Atari bus. When two computers try to write to the same disk at the same time, it's a sure bet your data will be scrambled.

It might have been better if the switchable version had a double-pole, double-throw switch, which would insure that any time one port is switched on, the other is switched off. This would prevent any accidental conflicts with peripherals.

As it is, users sharing their systems can best avoid problems by employing "manual handshaking," where one user asks the other for access to the peripherals, switches the other's computer off, switches his on, and then goes to work. Ideally, each would use RAMdisks for the majority of his work, switching the Quintopus! into gear only at backup time.

Quintopus! is also useful in situations where you frequently switch between two like peripherals, such as printers. An Atari 1027 letter-quality printer may be attached to one port, for printing those formal letters and reports. The other switched port could provide access to your workhorse dot-matrix printer.

When turning off one computer in a dual-computer setup, It's wise to disconnect that computer at the Quintopus! switch. If the other computer is on and both switches are enabled, the first computer will continue to draw power from the bus. This isn't good for either computer, and is best avoided.

Actually, I can't think of any reason why you'd want both switchable ports on at the same time. If both ports are needed at the same time, then no switching is required. In that case, the less expensive version of the Quintopus! best applies.

The Quintopus! consists of a small circuit board, not much larger than a 3×5 inch index card. It contains a few components to handle the switching of the ports, a pair of toggle switches, and the six Atari SIO bus connectors. It's not pretty, since it isn't housed in a case. Computer Software Services said a case would have added about seven dollars to the final cost. They

decided to provide the most product at the lowest price, so the case was eliminated.

I have no complaints about the lack of a case. If you do, you can buy a plastic project box from any Radio Shack, providing for an enjoyable evening of drilling, cutting, filing and fitting your own custom Quintopus! package. Of course, it will be mostly holes, to accommodate all the connectors.

The Quintopus! lets me connect my Atari XEGS and 800XL to the same set of peripherals. The XEGS video output is connected to the front of my Commodore 1702 monitor, the 800XL to the rear. I can easily put the XEGS to work backing up floppies or growing fractal curves, and then flip the monitor and Quintopus! switches to the 800XL. Then I can get back to work with MAC/65 and the ICD MIO RAM disks and FA-ST hard drive on that next software project for Antic.

Though not the most sophisticated form of "multi-tasking" available, the Quintopus! still delivers an elegant, affordable solution to an age-old problem—putting multiple computers to work with only one set of peripherals.

$39.95, switchable version $59.95. Computer Software Services, P.O. Box 17660, Rochester, NY 14617. (716) 467-9326.

WITH THE ENHANCER, YOUR XF551 CAN CREATE SIMILAR "FLIPPIES" OR STANDARD DOUBLE-SIDED DISKS.

XF551 ENHANCER

The **XF551 Enhancer** is a very useful hardware modification for the Atari XF551 disk drive. Very useful, and very confusingly advertised.

According to the Computer Software Services ad for the Enhancer, Atari's XF551 drive "is a fine product with one major flaw . . . it writes to side TWO of your floppy disks BACKWARDS. This causes read/write incompatibility problems with all other single sided drives made for Atari". These statements are not quite correct!

For years, Atarians have been making what we call double-sided disks on our 810 and 1050 drives. This is done by notching the opposite side of the disk, flipping it over, and formatting the reverse side of the disk. Each side of this disk has its own separate directory, and each side is logically considered to be a separate disk.

The proper term for such a disk is "flippy", since you must flip the disk over to access side two.

The Atari XF551 has two read/write heads, top and bottom. When a disk is formatted Double Sided, Double Density by Atari DOS-XE, SpartaDOS, or MYDOS, it is a single disk, logically as well as physically, with only one directory which charts BOTH sides of the disk.

What's the difference, you ask? Well, there's no more disk-flipping. You can access a *full* 360K of data (both sides) without turning the disk over! The DOS and second disk head make access to side two of the disk completely transparent.

It is true that side two of this disk is written in the opposite direction, relative to side one, but you couldn't use this disk as a flippy anyway, since there is *no* directory information on the second side. Assuming it was written in the "same direction" as the flip side of a flippy, there would still be no reasonable way to access the data.

Users have been making flippies for so long that Atari built some "protection" into the new XF551 drive mechanism. To prevent accidental formatting of the second side of a disk which is *already* double-sided, the XF551 refuses to format the back side of a flippy disk—even if it is notched.

The idea is to break a bad habit and protect your data. It is a good idea, but can also be annoying.

The XF551 *can* read and write to the flip side of flippy disks as long as they are formatted elsewhere (on a 1050 or 810 for example).

The XF551 Enhancer defeats the XF551's format protection, letting you either create flippy disks, or the "true standard" double-sided disks, at the flip of a switch. The reality is that there are far more 1050 and 810 drives out there than XF551s. To exchange data with these other systems, or with other single-sided drives in your own system(s) in the most disk-efficient manner, you need the XF551 Enhancer.

The Enhancer consists of a small, solid black module (which encases some electronics), a toggle switch, and seven wires that must be connected to various points in the drive mechanism and circuit board. One jumper must be cut and soldered. There are no pins to desolder and pull up, and no etch to cut. This makes installation pretty simple and straightforward.

The 16-step instruction sequence is very nicely detailed, accompanied by a hand-drawn reference schematic. I found no need to look at the schematic, since the written instructions were so well prepared.

With proper lighting, soldering equipment and related tools, this installation should take an experienced "solder jockey" less than a half hour. With care, a novice who knows how to wield a soldering iron with the proper attention to all details should be able to complete the job in about an hour.

You must remember that any hardware modifications to the XF551 will void its Atari warranty. Therefore, it is best left pristine until the 90 day warranty has expired. (**Antic** takes no responsibility for the results of any hardware modifications.)

There are no ON/OFF indicators on the switch itself. With the switch in the direction of the "black wire," you can format the flip side of any disk, with or without a write-enable notch. In the opposite direction, the flip side of your disks are protected from accidental formatting, just as originally designed by Atari.

I wrote "FLIPPY" and "NORMAL" on opposite sides of a disk label, attached it to the rear of the drive above the drive select switches, drilled a 1/4" hole between the two words, and mounted the switch as prescribed in the documentation. Before locking down the nut, I made certain that the black wire was facing the "FLIPPY" side of the label. Some double-backed tape, provided on the XF551 Enhancer, made it a snap to attach the small black cube to the metal bracket just inside the rear of the drive.

The disk worked fine the very first time. DOS was able to format the flip side of a disk, *without* a write-enable notch cut in the disk. Reading and writing was no problem after that. But I strongly recommend notching the flip sides of *flippy* disks, That way you are much less likely to confuse your double-sided and flippy disks. Also, a notched flippy allows writing to the back side of the disk *without* having the XF551 Enhancer enabled. It's wise to keep the Enhancer off at all times, except when formatting a flippy.

The XF551 Enhancer lets you create flippy disks in the same manner as the 1050 or 810, with the added feature of being able to override write-protect tabs. This facilitates the exchange of more data on fewer floppy disks, using 1050, 810, Rana, Indus, and other Atari compatible drives.

I'm very pleased with the performance of the Enhancer. Since I have a 1050, and most of my friends still use them as their main drive, I must be able to format and duplicate flippy format disks easily, and the Enhancer lets me get the job done on my XF551. Now that I have the Enhancer installed, I'm ready to retire my old 1050 and add a second XF551 to my 8-bit arsenal.

$29.95. Computer Software Services, P.O. Box 17660 Rochester, NY 14617. (716) 467-9326.

LOAD AND DISPLAY A WHOLE NEW WORLD OF COMPUSERVE GIF PICTURE FILES ON YOUR 8-BIT ATARI.

ATARI VIEW 8

Atari View 8 is a shareware product written and distributed by Don Davis. It is a utility for viewing pictures stored in CompuServe's GIF (Graphics Interchange Format).

GIF is a graphics file format developed and trademarked by CompuServe. It is a "device independent" standard that provides a method for transferring graphics from one computer to another. The various picture forums on CompuServe provide many visuals in this graphics standard.

Atari View 8, Version 2.0 is a shareware utility that lets you load and display a GIF file in your 8-bit Atari. It also lets you zoom in or out on any portion of the image. If you like what you see, the program can also save the current display in Micropainter format.

When you have logged onto CompuServe, type GO QUICKPICS to find some of the files best suited for viewing on the 8-bit Atari. There are 16 libraries to choose from. Here all files are 20,000 bytes or smaller, with a resolution of no more than 640 X 200 pixels, and 16 colors at most.

I've gotten best results with 320 X 200 graphics in either two or four colors, especially digitized images.

When you go looking for these files on CompuServe, make certain that they are GIF format and not the older .RLE (run length encoded) format. The correct filenames will have .GIF extenders.

I managed to find a GIF version of "Stoneage," by Darrell Anderson of Colorado Springs. He was the DEGAS art contest winner in **Antic**, July, 1986. However, the original Atari ST image loses something in "translation" when viewed on the 8-bit with Atari View. The color mapping didn't work well, and no matter how much I zoomed in on the image it was difficult to recognize its content.

The documentation warns of such problems and provides advice on proper GIF selections. The original Stoneage was 640 X 200 pixels, in 4 colors. Atari View does a very good job with most two-color and four-color images, regardless of size.

Once you have downloaded some GIF files from CompuServe or other bulletin board systems, you can put Atari View to work displaying them. And then you can convert them to a format for customizing with your favorit paint software. There are many "clip-art" files in the graphics forums of CompuServe that could potentially be used with Print Shop, Newsroom, or the applications from Hi-Tech Expressions. If you want to convert your graphics to other formats, *Rapid Graphics Converter* by Charles Jackson (**Antic**, November 1985) will let you convert your Micropainter (.MIC) files into uncompressed Micro Illustrator format, the format used by a wide variety of graphics products, Graphics Shop ($19.95, Antic Arcade Catalog AP156) will handle conversions to Print Shop format, and Newsroom Converter (**Antic**, December 1988) converts images into Newsroom file format.

Atari View takes its color data from the GIF file header and does not allow you to adjust it. This is the only annoying limitation of the program. The documentation advises you to

adjust your display if the colors don't appear correctly. A sample color bar file is provided for use as a reference in these adjustments. This doesn't account for personal tastes. No matter how well Atari View might match the original colors, personal interpretations are somewhat subjective and should be adjustable.

Also, the user may specify a default drive, but Atari View always looks at Drive 1 for its "help file," not on the default drive. The directory function and filename input are two separate commands, so you can't view a list of GIF files while typing a filename. All user-friendly software should allow you to see a list of files at the same time that your input is being accepted.

These are only minor gripes about an otherwise exemplary program. Atari View performs all other functions very well. The commands are straightforward, [R] to read a GIF picture, and [W] to write a Micropainter file.

The most useful commands are [V]ertical, [H]orizontal, and [S]ize scaling of an image. They are a little quirky to use at first, requiring that you adjust vertical and horizontal scaling down, using keyboard controls, before moving a pair of sizing boxes to select a zoom area. It would have been more elegant to allow joystick selection of these parameters. Atari View will even allow you to zoom out, or shrink an image on the display.

You can achieve very good results by adjusting the color [T]hreshold and the zoom area of an image. I found a two-color digitized image of Chuck Berry that looked pretty sharp on my PC display. On the Atari 8-bit it looked pretty sad when viewing the entire picture. I adjusted the width and height, then selected just the upper body and guitar to zoom in on. The result was excellent, and I pressed the [W] key to write the picture to disk.

Atari View 8 opens up a whole new world of graphics for your Atari 8-bit computer. No matter how large or complex the image, so long as the GIF picture fits on one disk, Atari View will show it to you. It isn't practical for viewing pictures with more than four colors, in most cases. But by zooming in on bits and pieces of a very large image, you can get a very good idea of what it contains.

I hope that future upgrades to the Atari View package will include a separate printing utility for creating hard copies of some of these excellent graphics. Atari View 8 is available for downloading from CompuServe's 8-bit Atari forum (type GO ATARI8), or may be ordered by mail from the author. It's an excellent product for the price.

$20 shareware contribution requested. Don Davis, 50 W. Holly Hill Road, Apt. 13, Thomasville, NC 27360. (919) 475-2627.

NEW PRODUCTS

DARKSTAR PLUS, CLEARINGHOUSE, LOTTO WHEELER

(applications software)
F/22 Press
PO Box 141
Leonia, NJ 07605
(201) 568-6250

DarkStar ($64.95) is designed to solve all of the exposure and filtration problems normally encountered in the photographic darkroom. Among the eleven different types of problems it can solve are print density, magnification, lens opening, neutral density, color balance, filter factors, emulsion batch, b&w paper grade and type. **TimeStar** ($24.95) allows you to program as many as 15 sequenced events, each lasting up to 100 minutes. Audible warnings, and automatic or manual starting of periods are provided. Both DarkStar and TimeStar can automatically operate the Omega D5500 enlarger; the two are available combined in a single program called **DarkStar Plus** ($89.95).

Without accessing any on-line databases, **ClearingHouse** ($49.95) can help businesses detect bad checks. Requiring only a minute or two per check, the program runs through a series of 20 questions that catch 95% of invalid checks, according to the folks at F/22 Press—without requiring expensive telecommunications equipment.

For those less cautious with their money, F/22 also produces **WIN**, a program designed to pick favored numbers to win any type of Lotto or lottery, even exotic games like New York's 10-number Keno. WIN is sold for outright purchase at a price of $99.95; if the buyer promises to pay F/22 Press one-percent of everything over the first $100,000 won with the program, the price is only $19.95. For the scientific lotto player, **LOTTO WHEELER 2.0** ($24.95) uses "wheeling" systems popularized by mathematician Ivan Dimitrov to skew the odds towards the player.

PRINT 'N STAC2

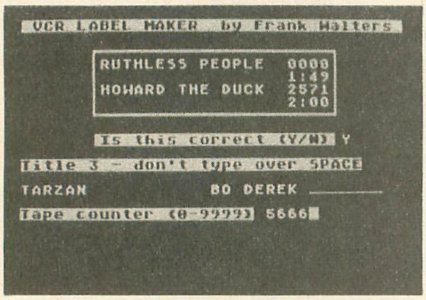
(printer stand)
Suncom
290 Palatine Road
Wheeling, IL 60090
(312) 459-8000
$19.99

The **Print 'n Stac2** combines an accessory paper tray with Suncom's two-piece PrinterMate universal printer stand. Separately, the two pieces retail for $25.98.

*New Products notices are compiled by the **Antic** staff from information provided by the products' manufacturers. Antic welcomes such submissions, but assumes no responsibility for the accuracy of these notices or the performance of the products listed.*

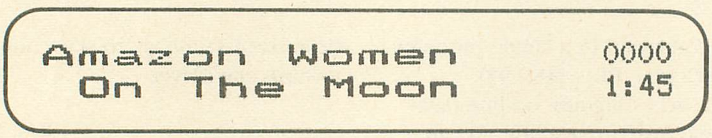
VCR Labeler

Instant cassette title directories. **By Frank Walters**





Print labels for your VCR cassettes with this simple BASIC program. It works on any 8-bit Atari computer with at least 48K memory and a printer. Printer drivers for five different printers are included, along with instructions for making your own.





VCR Labeler is a simple BASIC program that makes videocassette labels out of standard 3 1/2×15/16 inch printer labels (such as Avery #4145 labels).

Each label has room for as many as three titles, along with the VCR counter number and running time in hours and minutes (h:mm).

If you have more than three titles on a cassette, make two labels—they will fit on the edge of VHS box. You'll have to trim the left edges to fit two labels on a Beta box.

GETTING STARTED

Type in Listing 1, VCRLABEL.BAS, check it with TYPO II and be sure to SAVE a copy before you RUN it.

When RUN, VCR Labeler will ask you to select the type of printer you'll be using. If your printer isn't listed, try the other drivers to see if any of them will work correctly with your printer. Otherwise, follow the directions below for creating your own printer driver.

PRINTING LABELS

It's a good idea to put the labels in the printer before entering label information. That way, you'll be ready to print as soon as you've entered the in-

formation.

The program first asks for the number of titles for that label (1-3). This number determines the line spacing of the label. You can enter 3, even if you only have 1 title, leaving room on the label for more. That way, you can enter the VCR counter for the start of the next blank section.

The program then asks for the first title. For each title, there is room for 16 characters on each of 2 lines. The program will display two lines with a space between them. Type your title on the lines, but don't type a letter over the space. Simply space over it and begin the second line. Use the cursor keys to edit your line, then, when everything looks correct, press [RETURN]. The program will split the text into two lines and ignore the space between them.

Next, type the starting counter number of that program. Legal entries are 0-9999, or press [RETURN] for 0000. The program drops decimals and puts entries in four-digit form automatically.

Finally, enter the duration of the program—one digit for the hours, and two digits for the minutes. Use a space or colon to separate hours and minutes. For example, the program will accept either 1:30 or 1 30 as entries. [RETURN] will give the default time of 0:00. If the program is less than an hour, type a 0 for the hour value.

After information for each title has been entered, the label will be displayed on the screen. If necessary, you can re-type that section to correct any errors.

After entering the information for all the programs on the label, just follow the prompts to print it. You may wish to make the first label a 3-title entry, to check the spacing on the label when you print. There is an option to reprint a label if you have to adjust the labels in the printer. Once the triple entry label is centered, all following labels should be properly spaced, automatically.

CREATING YOUR OWN PRINTER DRIVER

If your printer is not supported, change line 5 to:

```
5 TYPE=6
```

This selects the OTHER PRINTER subroutine, located in lines 4600-4680. You'll need to know a little bit about BASIC programming to take the necessary printer control codes from your printer manual and place them into VCR Labeler

The program stores the printer control codes in string variables.

WIDE$, for example, contains the instructions to set your printer's character width (called "pitch") to 12 characters per inch (sometimes called "elite"), then sets your printer to double-width, or expanded print. Since expanded print is twice as wide as normal print, we'll get half as many characters per inch—6 cpi.

Most printer manuals give printer control codes in decimal. After finding the printer code, you'll have to convert it to a character string before you can add it to the program.

Here's an example. According to the Star SG-10/15 manual, the code used to set the print pitch to elite (12 cpi) is: 27, 66, 2.

Referring to an ASCII chart, we see that 27 is the ASCII code for the [ESC] character, 66 is the ASCII code for the letter "B" and 2 is the ASCII code for a [CONTROL][B] character.

Continuing on in the manual, we find the code used to set the printer to expanded print is: 27, 87, 1.

Returning to our ASCII chart, we see that 27 is the ASCII code for the [ESC] character, 87 is the ASCII code for the letter W and 1 is the ASCII code for a [CONTROL][A] character.

When you finally place these control codes into a string, they look like this:

```
WIDE$="␛B□␛W◫"
```

Note that this matches line 4310, which defines the SG-10/15 printer code for WIDE$.

Follow this method to create the rest of the printer control code strings, listed below:

WIDE$—Double-width characters for 12 cpi, giving six double-width characters per inch. See above for a complete explanation.

WIDEOFF$—Change back to 12 cpi.

BOLD$—Near Letter Quality, or your best looking double-strike or emphasized font (must stay at 12 cpi).

P66$—Code for standard 6 lines/inch or 66 lines per page. This determines the spacing between lines, not the form feed value.

P88$—Set 8 lines per inch or 88 lines per page.

UON$—Turn underline ON.

UOFF$—Turn underline OFF.

Up to four characters can be inserted. If you need more, put them in and re-DIMension the appropriate string in lines 1000 to 1020.

If your codes use less than four characters, you must remove any of the extra little hearts from your strings. These hearts represent nulls (ASCII 0) and do nothing. However, if you don't have a double strike or NLQ mode, leave at least one heart in the BOLD$, so it won't send a carriage return.

Once your TYPE is set and the printer codes are determined, remember to DELETE line 4605 of your subroutine, which is a trap to prevent that subroutine from being accidentally selected.

If you get tired of entering your printer type every time you RUN the program, put that number in place of the 0 in line 5. From then on the program will skip the printer setup whenever you RUN it.

Finally, be sure to SAVE your modified VCRLABEL program before you RUN it. ▲

Frank Walters has had work published in Computer Shopper and Compute!. His Lazy Loader *appeared in the May 1985 issue of* **Antic**.

Listing on page 41

SECRET OF Kyobu Di

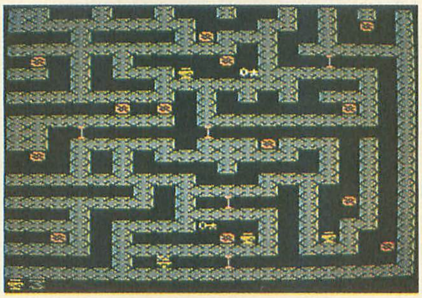
Shogun death maze of old Japan. **By Bernard Taylor**

Return to medieval Japan in this exciting game of treacherous mazes and hidden treasures. This sequel to* The Seven Skulls *is a BASIC program that works on 8-bit Atari computers with at least 48K memory, disk or cassette.

Ever since you became the Shogun of Japan with the help of the Princess Tanuki (*The Seven Skulls*, **Antic**, October 1988), things have been going from bad to worse. Someone has been systematically stealing the Sacred Treasures of Japan, including the Pearl of Wisdom, the Golden Helmet of Truth, the Sacred Sword of Justice and the All-Seeing Ruby-Eye of the Great Buddha. The Emperor has given you the task of recovering those national treasures.

Even more important, the beautiful Lady Tanuki was recently kidnapped and is being held for ransom at the castle of Kyobu Di, the warrior monk.

After a fierce battle, your army stormed the castle only to discover that the evil monk took Lady Tanuki to a secret chamber far beneath the castle. Lighting a torch, you and six of your bravest samurai enter the underground maze that separates you from Kyobu Di. . .



GETTING STARTED

Type in Listing 1, SHOGUN.BAS, check it with TYPO II and be sure to SAVE a copy before you RUN it. Antic Disk owners will find SHOGUN.BAS on the monthly disk.

If you have trouble typing the special characters in lines 305-310, 1105, 1150-1160, 1226-1236, 1254 and 31000, don't type those lines. Instead, type Listing 2, check it wih TYPO II and SAVE a copy. When you RUN Listing 2, it creates these hard-to-type lines and stores them in a file called LINES.LST (or to a separate cassette).

To merge the two programs, disk users LOAD "D:SHOGUN.BAS" and then ENTER "D:LINES.LST." Cassette users: CLOAD Listing 1, then insert the separate cassette used for Listing 2 and ENTER "C:". Remember to SAVE the completed program before you RUN it.

MAZE OF DEATH

Your position in the maze is represented by the torch you are carrying. The torch burns oil which must be replenished from time to time.

Yellow jars of oil can be found at various spots in the maze. Touching a jar with your torch will relight the torch if it has gone out or add oil to a dwindling supply. The amount of time left before the torch goes out is displayed at the bottom left corner of your screen.

If necessary, the torch can be extinguished by pushing the fire button on your joystick.

To reach the secret hiding place of

Kyobu Di you must first pass through a large sinister maze. The stone walls of the maze contain numerous one-way doors that let you climb up or down, but only in one direction. These doors have been cleverly hidden so you will have to knock on the walls with your torch to find them. Finding a hidden door automatically moves you to the other side of the wall.

Scattered around the maze are land mines and trip wires. These obstacles can be seen and easily dealt with (or avoided) as long as your torch remains lit. If the torch goes out you'll be "left in the dark" as to their exact locations. A dangerous situation, indeed!

If your torch goes out you'll be "left in the dark" indeed!

Stepping on a land mine results in instant death to one of your rescue party.

Crossing a trip wire tells Kyobu Di your location in the maze and he will try to kill you by throwing a battle ax, spear, or shuriken (pointed-star). He may even shoot an arrow at you. Although Kyobu Di has been known to miss with the spear, he is most proficient with all other weapons. So as soon as you hear the "twang" of a trip wire, move quickly to a spot where you will be out of the path of Kyobu Di's weapons.

You begin the game with seven men. Each time you step on a mine or get hit by a weapon, you lose a man. A skull will be added to the bottom of the screen to signify your loss. Collecting seven skulls (deja vu, huh?) ends the game.

TREASURES

Also in the maze are keys and iron chests. Keys are collected by touching them with your torch.

The different-colored chests can be opened only by touching them with the torch, but only while you possess a key of the same color as the chest.

Some chests are empty. Others contain items you may find useful during your journey through the maze. Unused keys and any other items found are displayed at the bottom of your screen.

FINAL MAZE

As you near the secret hiding place of Kyobu Di, you will find no mines or trip wires. You are now close enough for Kyobu Di to see the light from your torch and he will react accordingly.

The Final Maze also contains new hidden doors which let you pass through walls to the left or right.

At the beginning of each game you may choose how, or where, the keys will be placed in the maze. Press [OPTION] to place some of the keys in new random locations. Press the [SPACEBAR] to put all keys in the same locations each time the game is played. The challenge of Random Keys should be attempted only after you have become familiar with all aspects of the game.

You are now ready to match wits with the warrior monk. Local villagers have planned a fireworks celebration in your honor in the unlikely event that you successfully rescue the Lady Tanuki.

A final warning! Kyobu Di is a master of cunning and deceit. Many deadly surprises await those who act rashly or fail to unravel the Secret of Kyobu Di!

Bernard Taylor is a bulk mailing specialist from Roseville, California. This is his second appearance in Antic.

Listing on page 46

Cribbage Atari

Play the game without worrying about lost pegs. **By David Osborn**

Cribbage Atari is a fast, clear version of the popular card game. Pitting one player against the computer, it's also an easy way for beginning players to learn the scoring and strategy of cribbage, before getting out the pegboard and challenging human opponents.

Written entirely in BASIC, the graphics are kept simple enough that the play is at least as fast as the average human opponent. The cards are displayed by rank and suit, instead of with miniature pictures of cards.

All modesty aside, I believe most players will find Cribbage Atari a worthy opponent.

GETTING STARTED

Type in Listing 1, CRIBBAGE.BAS, check it with TYPO II and be sure to SAVE a copy before you RUN it. This is a *long* listing, but it's not at all tricky to type.

To play the game, just follow the onscreen instructions. The program first displays the title and starts setting up the character set. Setting up takes some time, so to keep you from getting too bored the program will interrupt itself to ask you questions.

The first question lets you set the speed of play. Beginners and first timers should try a setting of [5], so they have time to follow the scoring.

Next the program asks whether you want to use a joystick or the arrow keys. Type a [K] to use the keyboard, or a [J] to use the joystick.



Now you can play the classic card game cribbage without needing to worry about finding the cribbage board—or remembering just how the scoring goes. Cribbage Atari is a fast BASIC program that works on any Atari 8-bit computer with at least 48K memory, disk or cassette.

If you use the joystick, move the selector arrow with the stick and press the button to signify your choices.

If you use the keyboard, use the arrow keys to move the cursor (you do not need to press [CONTROL].) Use the [INSERT] key to make your selections.

Once the play screen comes up, you're dealt six cards. The program displays the suits in black and red, with numbers and letters indicating rank. When adding card values together, each card is worth its face value. Aces count as one, all face cards

count as ten.

THE CRIB

The first thing you must do is pick two cards for the crib. (You have to wait for the computer to take its turn first.) The cards you select are placed face down in the area marked either YOUR CRIB or MY CRIB. If you accidently choose the wrong first card, choose the space where that card was and your hand will be redisplayed so you may choose again. Once both cards are chosen—well, a card laid is a card played.

The computer does the scoring, telling you each time what the points are for.

The cards in the crib become a second hand that either you or the computer plays for points. When it's YOUR CRIB, you discard the cards that will be most likely give you points, while keeping as many points as possible in your hand.

When the computer says it's MY CRIB, you try to get rid of useless cards that won't help the computer.

Once you have selected your crib cards, the STARTER card is revealed, and you're ready to play.

POINT SCORING

There are two ways to get points in cribbage. Certain combinations of cards in your hand are automatically worth points—pairs, runs, flushes, and combinations of 15 (an eight and a seven, a five and a ten, and so on.)

The starter card is counted as a part of your hand. If you have the jack of the same suit as the starter card, you also get one point for "nobs."

The other way to get points is through game play. The player who doesn't get the crib plays first. If the computer plays a 10, and you follow with a five, you get two points for making a total of 15. If the computer then plays a five, it gets two points for a pair. Runs of three or more consecutive cards (a two, three and four, for example) also count. A total of 31 gets two points.

If one player can't play in turn without putting the total over 31, the other player gets to "go" until also unable to play. One point is awarded for the last card played, and the total returns to zero.

As soon as all the cards have been played, it's time to count up all the points in each hand.

If all this sounds confusing, don't worry—the computer does all the scoring for you, telling you each time what the points are for. Arrows point to the cards involved, and a message flashes at the bottom of the screen, such as "PAIR FOR 2" or "15 FOR 2". It's an excellent way for beginners to learn the scoring system. (Experienced players will probably want to speed up the game at the first screen, since they don't have to worry about following the scoring.)

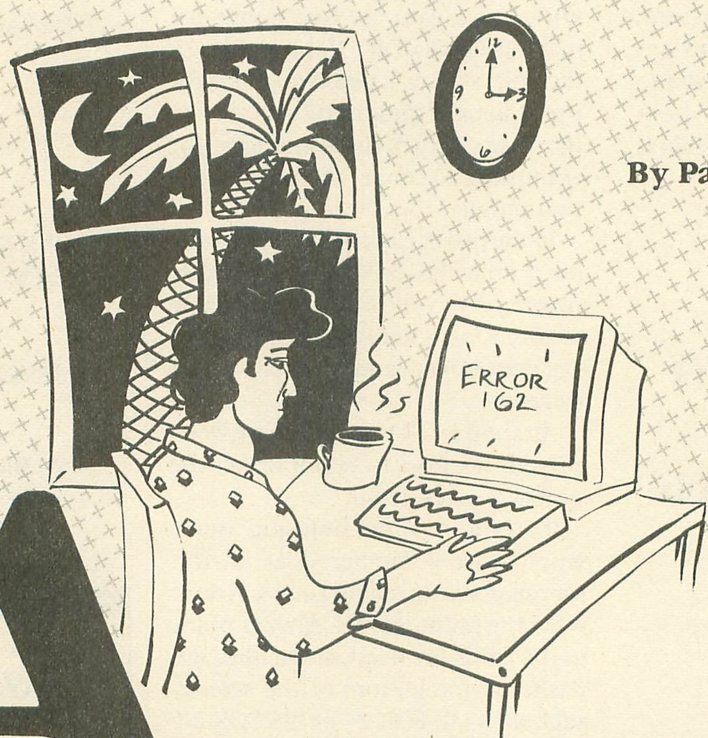
When playing with cards, cribbage scores are kept on pegboards. The computer simulates this by showing rows of pegs onscreen, one peg for each point. The screen's perimeter allows only 60 peg spaces, so the computer will lap the perimeter twice, for one game of 121 points.

David Osborn of Bismarck, North Dakota has a B.S. in mathematics and enjoys games of all kinds, especially strategy. This is his first appearance in **Antic**.

Listing on page 38

Atari BASIC Enhancements

By Paul Alhart



Kate Murphy

ATARI BASIC ENHANCEMENTS IS A COLLECTION OF VERY USEFUL ROUTINES THAT CAN BE USED FROM BASIC—WITHOUT TOUCHING YOUR PROGRAM IN MEMORY. THESE SHORT BASIC PROGRAMS WILL WORK ON 8-BIT ATARIS WITH AT LEAST 32K MEMORY AND DISK DRIVE.

There I was sitting at my Atari at 3 a.m. trying to save my just-completed masterpiece. I kept getting an ERROR 162 (whatever that means) no matter how many times I tried. I had left my BASIC Reference Manual at a friend's house, so I couldn't even look it up.

As my fingers danced across the keyboard typing the word DOS, I got a bad feeling, and stopped. What if there was no MEM.SAV on this disk? All my work would be lost. Now what? I grabbed for a fresh disk, only to find that I had none that were formatted. No formatted disks, ERROR

Library of high-powered routines.

162, and not able to go to DOS. What to do?

ENTER (pun intended) my Atari BASIC Enhancements.

With these BASIC Enhancements I could look up that error code, delete unnecessary files, and more. All without leaving BASIC, and more important, without affecting one line of my precious program.

Now the world was assured of another great 8-bit program and I was able to get some sleep.

BASIC ENHANCEMENTS

Atari BASIC Enhancements is a collection of useful routines that help you get the most from Atari BASIC.

Unlike a BASIC wedge or other Extended BASICs, the enhancements will work with any 8-bit Atari and Atari BASIC Rev. A, B, C or compatible BASICs.

Each enhancement file consists of a collection of BASIC statements *which have no line numbers.* Since there are no line numbers, the BASIC statements are executed immediately.

For example, the LOCK Enhancement will lock a given disk file. Here's what the LOCK Enhancement file looks like:

CLOSE #1:CLR :DIM Z$(18):? "Which File to LOCK?"

? " Ex. D2:DATA.EXE":INPUT #16,Z$:? "Locking ";Z$:XIO 35,#1,0,0,Z$

You could just as well have typed these lines in immediate mode, but keeping these commands in a single file is much more convenient.

The Enhancements use no program memory and don't touch Page 6. Any program in memory is untouched and can be LISTed or RUN as soon as the BASIC "READY" prompt is restored.

Written for Atari DOS 2 users, most of the Enhancements should also work with any compatible DOS. Known exceptions are noted in each Enhancement's description. But the routines automatically test for compatibility before they begin, just in case.

GETTING STARTED

Type in listing 1, ENHANCE.BAS, check it with TYPO II and SAVE a copy to disk. Have a second disk ready, freshly formatted with DOS 2 and with the file DOS.SYS on it. When you RUN "D:ENHANCE.BAS", the program will bring up a menu.

You can choose which enhancements you want written to the disk, each as a separate file. Antic Disk owners will find all the enhancements already on this month's disk.

The BASIC Enhancements on this disk are all ENTERed from BASIC in the Immediate Mode by typing ENTER "D:FILENAME" and then following the screen prompts.

Copy any or all of them to your work disk or RAMdisk, to eliminate disk swapping. The Enhancements will run faster from a RAMdisk. Drives 1—8 are supported. For proper operation, do not rename the Enhancements "HEX," "DEC," or "ERROR." Following are descriptions of each Enhancement.

THE ENHANCEMENTS

BINLOAD: DOS 2 equivalent "L" Binary LOAD. Load and Run any machine language program that can be run with BASIC installed. NOTE: For use only with DOS 2 or DOS 2.5

DEC: DOS 2 equivalent—None. Decimal to Hexadecimal conversion.

HEX: DOS 2 equivalent—None. Hexadecimal to Decimal Conversion. The decimal and hexadecimal files work together. Both are written to your disk at the same time.

DELETE: DOS 2 equivalent "D" Deletes a FILE.

DIR: DOS 2 equivalent "A" Disk Directory. This Enhancement will always end with an ERROR 136. This is normal and may be disregarded. NOTE: when using DOS 2.5, filenames shown in <brackets> use sectors above 720 and are not available to DOS 2.

DRIVES: DOS 2 equivalent—None. Examine/Set which Disk Drives DOS will support. NOTE: Modifies DOS.SYS.

ERROR: DOS 2 equivalent—None. Gives an English translation of Error Codes.

ERROR.164: DOS 2 equivalent—None. Enable/Disable ERROR 164 handling by DOS. NOTE: Modifies DOS.SYS. Not Compatible with DOS 2.5

LOCK: DOS 2 equivalent "F" Lock File.

OPENFILE: DOS 2 equivalent—None. Examine/Set number of File Buffers. (Number of Files that can be OPENed at the same time). NOTE: Modifies DOS.SYS.

RENAME: DOS 2 equivalent "E" Rename File.

UNLOCK: DOS 2 equivalent "G" Unlock File.

WRITEDOS: DOS 2 equivalent "H" Write DOS Files. NOTE: Only DOS.SYS is written. Use whenever DOS has been modified and you want to make the changes permanent.

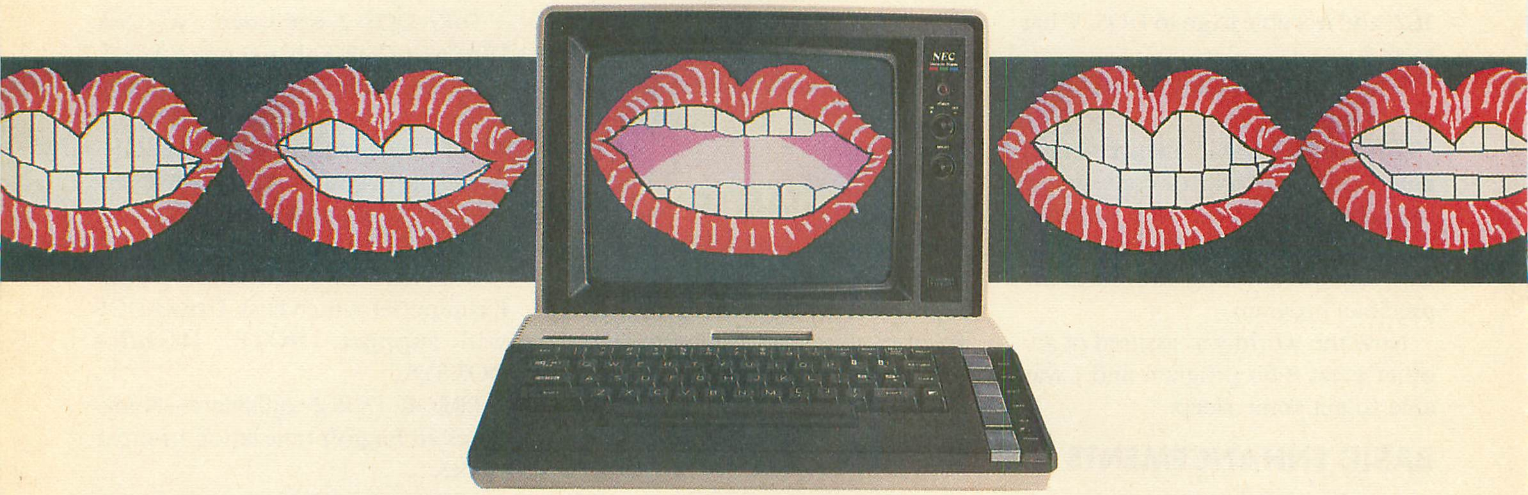
ANTIC ED: *If you want to make a MEM.SAV without going to DOS, the command to do it is:*

OPEN #1,8,0,"D:MEM.SAV":CLOSE #1

Paul Albart of Lompoc, California is an Electronics Technician in the aerospace industry, and an active member of his local users group, the Atari Federation. His Tech Tip DefaultWriter Plus *appeared in the July 1988 issue of* ***Antic.***

Listing on page 42

Make your own talking programs that



Covox Coach and Yak-Spell

By Matthew Ratcliff

This month's Super Disk Bonus shows you how to add true digitized speech and sounds to any program you write. The May 1989 Antic Disk brings you a double-feature by Matthew Ratcliff—a stand-alone talking program called Yak-Spell, plus the Covox Coach tutorial that enables you to create your own talking programs with the $49.95 Covox Voice Master Junior.

You can use Yak-Spell even if you *don't* have the Voice Master Junior. You'll find it on the Side B of this month's Antic Disk as YAKSPELL.BAS, along with the speech and spelling files that it needs.

GETTING STARTED

Just RUN "D:YAKSPELL.BAS" and you'll see a list of available spelling files. Type in the name of the file you want to use. You don't need to type the .SPK extender. Yak-Spell will quiz you—in Matt Ratcliff's own voice.

If you own the Covox Voice Master Junior you can create your own Yak-Spell speech files. Later in this article we'll explain how to do this, using the Yak-Spell Builder, SPLBLD.BAS, also found on your Antic monthly disk..

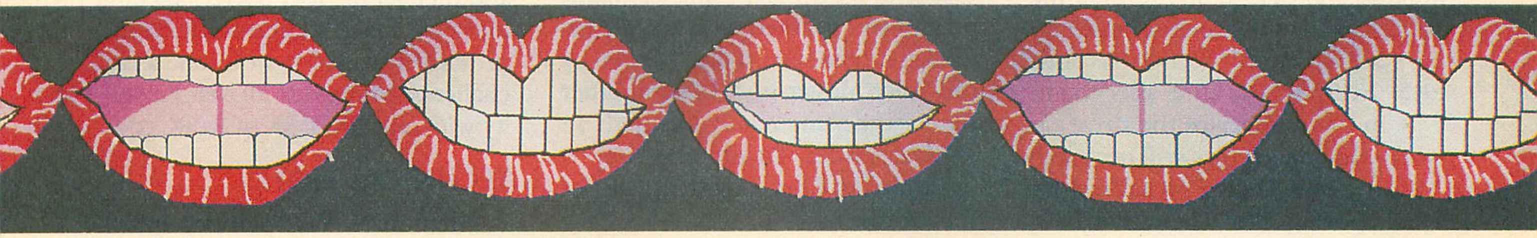
Yak-Spell prompts you for the drive where the dictionary files are located (matching speech files are expected to be on the same disk). A directory of all the spelling files is then listed. You only need to type the name of the lesson to study, such as ANIMALS from this month's Antic Disk. The spelling and speech files are loaded into memory, the main screen of the program is displayed and the first word is spoken.

At the top of the display is the program title, followed by the name of the lesson now under way. Below this is a line indicating the number of the word to be spelled and the total words in the quiz. At the bottom of the display is a box with information about special keys that Yak-Spell understands.

Press the asterisk key [*] to hear a word spoken again, as often as desired with no penalty. Pressing the [ESCAPE] key will display a series of dashes (-) below the word line, one "blank" for each letter which has not been spelled. If the current problem has multiple words, the spaces will be shown as underline (_) characters. These spaces must be typed in the correct position by pressing the [SPACEBAR]. Near the center of the screen is a question mark (?), where the actual spelling takes place.

To spell the word, simply type it out. If you are really stumped, pressing the question mark key [SHIFT] [/] will coax the next correct letter out of Yak-Spell. However, this is the same as misspelling the word! Pressing [ESCAPE] to get "blanks assistance" comes with no penalty, but results in

play back without hardware add-ons.



a warning at the end of the lesson.

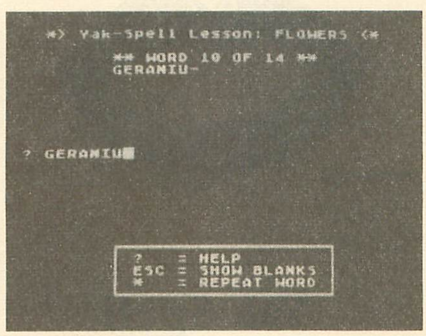
If you make a typing mistake, the "try again" phrase will be spoken and the error logged. For each correct key press, a pleasant "ding" is heard, until the word is completed. If the word was spelled correctly, Yak-Spell will say you are "correct" and move on to the next word.

After all words have been spelled, a percentage score is computed and displayed, along with a letter grade and rating. You are then prompted to quit or practice some more. If you continue, you can study the same lesson again, or select a new one.

Your May 1989 Antic Disk—featuring the talking double-bonus Yak-Spell and Covox Coach—as well as every type-in program from this issue—will be shipped to you within 24 hours after receiving your order. Just phone Toll-Free to the Antic Disk Desk at **(800) 234-7001**. The monthly disk is only $5.95 (plus $2 for shipping and handling) on your Visa or MasterCard. Or mail a $5.95 check (plus $2 shipping and handling) to Antic Disk Desk, 544 Second Street, San Francisco, CA 94107.

TALKING SOFTWARE

The Covox Voice Master Junior ($49.95) is a magnificent educational tool. With it, you can add true digitized voice and sounds to any pro-



gram. Covox Inc. is at 675-D Conger Street, Eugene, OR 97402. (503) 342-1271.

This coaching session will help you create your own talking programs. We'll use Yak-Spell as a demonstration. There are two steps in developing talking software. First, you must write a program which uses the Covox software and hardware to create your speech files.

Second, you must write another program to read these speech files and "speak" them to the user. This should be a "stand-alone" program—it should not need any Covox hardware. Any Atari owner should be able to RUN and hear your program.

Covox provides excellent subroutines for controlling the Voice Master Junior. These make it a snap to create speech files. With their PLAY utility, you can easily create your own stand-alone talking programs.

There is one significant limitation with the PLAY utility, however. It always loads speech data files to the same location, 16384 ($4000), right in the middle of BASIC memory. This leaves only five or six kilobytes of main memory for your own program. This is too inflexible for any serious talking software.

So for more flexibility I wrote an assembly language USR routine which loads a speech file into a BASIC string. BASIC will manage the string's location in memory, keeping it clear of your program (and giving you one less detail to worry about). Now, *you* can control the amount of memory allocated for speech data.

For example, Yak-Spell uses a 12,000 byte buffer for speech data. This buffer will hold about 20 words, leaving another 20K of RAM for your program. *That's about four times more RAM than the original Covox load-and-play utility gives you.*

RECORDING SPEECH

You'll need the Covox Voice Master Junior hardware and software to record your own speech files. To write a speech builder program, you must first RUN "D:VM800" from the Voice Master Junior program disk. This installs the VM.800 handler, letting your Atari LEARN, SPEAK, and SSAVE words. For Yak-Spell, I first wrote SPLBLD.BAS, the program that creates

the speech files.

Next, load SPLBLD.BAS from this month's disk. SPLBLD.BAS *must* be RUN with the VM.800 Covox Voice Master handler installed! When RUN, SPLBLD.BAS asks you to plug a joystick into port 1, and to plug the Voice Master Junior microphone into port 2. It also asks if VM800 has been RUN. Next, SPLBLD.BAS asks you to type in the number of the drive on which the speech files will be saved.

Next, SPLBLD displays a directory of all spelling files. These files have .SPL extenders. Now type in the name of the new spelling file. If the file already exists, it will be replaced with the new one.

Yak-Spell Builder then prompts you to type in the first word in your spelling list. It's best to work from a prepared word list with carefully checked spelling. After each word is entered, you'll be asked to to verify the spelling and correct any mistakes.

Now speak the word. Remember, the word must be spoken clearly, distinctly and carefully. You'll see the familiar reverse video plus sign at the top left of the screen. This means that the program is learning the current word.

Yak-Spell Builder will immediately play back the word. If it doesn't sound right, pull back on the joystick. Then you can re-record the word. You can do this as many times as necessary to get just the right sound. When you hear a sound you like, press the joystick button to save it, and continue with the next word.

Immediately after the word is learned, Yak-Spell Builder displays the "total vocabulary size." This number shows you how much RAM your speech file is using.

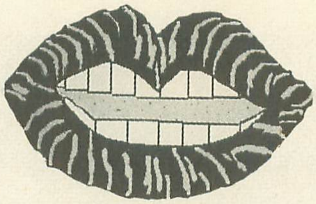
The session ends when 20 words have been typed in, or when you press [RETURN] instead of typing a word.

Next, the program will ask you to say "correct" and "try again." Yak-Spell uses these words to tell you if you spelled the word correctly.

Of course, you can get creative and make special sound effects, sing a few notes of a favorite ditty, or execute a Bronx cheer instead of the above phrases.

The spell builder then writes all the words to a disk file, using the name previously specified with an .SPL extender. All the speech data learned by the Voice Master is saved to another file by the same name, but with an .SPK extender. Finally the user is prompted to print a hardcopy list of the words.

Generally it is a good idea to print the list, and let the "student" review it before taking a Yak-Spelling exam. No matter how carefully the words are pronounced, something is always lost in the translation from human voice to computerized digital data. Occasionally, foreknowledge of the word is a necessity for understanding what the computer is "saying."



Yak-Spell will give you a spelling quiz—in Matt Ratcliff's own voice.

It would be nice to have a separate editor program for updating speech and dictionary files. But if the spell builder had gotten any larger, it just would not run under Atari DOS. When SPLBLD.BAS is loaded and its arrays initialized, there are only 65 bytes of free memory.

A separate editor program could SLOAD the speech data and word file, and then let the user correct spelling mistakes, make additions, deletions, or relearn words. It would be a real challenge to provide all that flexibility with only 2K or 3K of BASIC code.

TECHNICAL NOTES

When RUN, Yak-Spell first initializes all its arrays, including TALK$, a 12000 byte speech data buffer. Then a subroutine DIMensions and initializes COVL$ and COVP$ strings, which will contain the load and play assembly language routines, respectively.

Lines 1010 through 1250 and the file COVOX.SYS make up a complete "tool kit" for writing talking programs which require no extra hardware or memory-hungry support software to use existing speech data files.

There are several steps to follow to put the Covox Coach tool kit to work. First, initialize all working strings, including the speech buffer string. A 12K buffer can hold about 20 to 25 separate words.

Next, call the subroutine to load the file COVOX.SYS into the COVL$ and COVP$ strings. This begins at line 1130 in YAKSPELL.BAS. (All lines 1010 through 1250 from YAKSPELL.BAS are required.)

After initializing these strings, a speech file may be loaded as follows:

TALK$ = 'D:FOOD.SPK":REM TALK$ was DIMendioned to 12000 bytes.

ERR = USR(ADR(COVL$), ADR(TALK$), 12000):REM This is the *COV*ox *L*oad USR routine.

The assembly language USR routine, above, expects three values:

—The address of the string containing the actual machine language code for the USR routine, ADR(COVL$).

—The address of the speech buffer, ADR(TALK$).

—The total size of the speech buffer,

12000.

The speech buffer (TALK$) must contain the filename of the speech file before the USR call. After the USR call is through, an error status code is returned in the variable ERR. If ERR = 136 is there, the end of the file was reached before 12000 bytes were loaded. This means the entire speech file fit into the speech buffer, TALK$.

If ERR = 1, the USR routine was able to load 12000 bytes of speech data, but did *not* reach the end of the file—more data is available to load. In other words, the speech file is bigger than TALK$.) The only problem this causes is that some words may get "chopped off" when played back.

The formula for calculating memory and total words for a speech file which has just been loaded is:

```
BASE = PEEK(256)*256
MEM = PEEK(BASE+256)+256*
      PEEK(BASE+257)-BASE+
      256
TW  = PEEK(BASE+259)
```

These equations, when used immediately after loading a speech file with the USR routine described above, give you three pieces of information:

—BASE is the starting address of the Covox speech data. Note that BASE is not necessarily the same address as the buffer string. It will be rounded up to the next page (256 byte boundary address).

—MEM tells you how much RAM you need to hold the entire speech data file.

—TW is the total number of words defined in the data file.

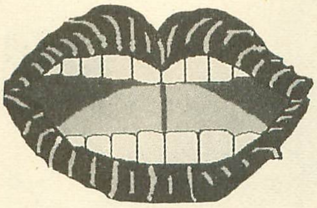
If MEM is larger than the speech buffer, TALK$, then you must increase the string size, then adjust the USR call which loads the file into the string. Alternatively, you may re-record the speech file, talking faster to make it fit.

There is no need to worry when the speech file is larger than the string reserved to hold it, since the load routine will not load any more than the amount specified in the USR call.

Use the equation for MEM, above, to find out how much larger the buffer string must be if the error code is a 1 instead of 136.

The Covox play utility requires speech data to begin on a page boundary (an address evenly divisible by 256). The loader places the page number in memory location 256 ($0100). For example, 16384 ($4000) is an address which is evenly divisible by 256 (16384/256 = 64). In this case, the loader will place a 64 into memory location 256.

Now, use the BASE equation above, instead of "BASE=16384", as shown in the Covox Voice Master Jr. manual, appendix I. Then all the other sample computations given in pages 29 through 32 of the manual will work properly.



You can re-record each word as often as necessary to get exactly the right sound.

After a speech file has been successfully loaded, the words may be spoken. The USR call is:

A=USR(ADR(COVP$),WORDNO,VOL,SPEED,SCREENMODE)

This USR routine expects five values:

—The address of the string containing the actual machine language code for the USR routine, ADR(COVP$).

—The number of a word previously LEARNed with the assistance of the VM800 software, WORDNO. This may be any value from 0 through 63.

—The amplitude, or volume of the speech, VOL. This may be any value from 0 to 15, and works like BASIC's SOUND command. You'll normally keep this parameter fixed at 15.

—The SPEED of playback, which may be any value from 0 to 4. Normally LEARN mode is done at a speed of 2. For correct sound, the playback speed should match it. Experimentation with the SPEED results in some interesting effects which are of very limited usefulness.

—The SCREENMODE should be 34 to keep the display on during playback, or 0 to turn it off. With the screen off, the speech quality is only slightly better.

SOURCE CODE

The file VMLOAD.M65 is the MAC/65 assembly language source code for the relocating loader utility. Study of this file, along with the notes in the Voice Master Junior user manual (pages 29-32), will reveal the internal structure of the data files.

The play routine is simply coded as .BYTE statements, taken from the PLAY program provided on the Voice Master Jr. disk. With minor modifications, VMLOAD.M65 may be used in stand-alone assembly language or ACTION! programs.

Employing this new load utility for Covox speech files, Yak-Spell can grow by another 12K of code, even with its 12K speech buffer initialized. With a little study of the Yak-Spell program, you should be able to create some very educational and entertaining verbose software for your family and friends.

Note: The author wishes to thank Kevin Gevatosky and Brad Stewart of Covox Inc. for their generous, infinitely patient assistance with the Covox Coach project.

Irrational Computing

By Brian Siano



Dwight Been

"Kook Mail" database for fun and profit.

Until I began my Kook Mail project, I was hardly aware of how much the 8-bit Atari computer could do in terms of a personal business. I'd used AtariWriter for freelance word processing (always a moneymaker when you live near a university), my own writing—and games, of course. But the Kook Mail project illustrated just what I could do with an Atari.

I have always been fascinated with pseudo-science—perpetual motion machines, flat-Earth theories, myths about Atlantis and the Bermuda Triangle, quack medicine and UFO stories. Whenever I came across a really *good* piece of strangeness—something that was detailed, funny and highly original—I kept it. Sometimes this made my housemates nervous, but I had a good time.

So I had a small, disorganized collection when the Fall '86 issue of the Whole Earth Review came out. It was dedicated to "Strange Myths and Eccentric Science," and the funniest article was an account of collecting Kook Mail by Ivan Stang.

Stang, a co-founder of the parody cult, Church of the SubGenius, had collected this stuff for years, culling it from ads in the National Enquirer, Fate, Soldier of Fortune and the Weekly World News. Stang included a lengthy list of recommended addresses, with hilarious descriptions of what they had to offer. All you needed

to do was write for information. I decided to put my Atari to work on my own collection, so I set up a SynFile+ database, adding Stang's list to my own.

The file contained the name, address and brief description of each organization. I also included a set of evaluations ranging from "Dull and Boring" to "Truly Strange Minds" and "Top Of the Heap." My classification system included Weird Science, UFO Contactees, Lone Eccentrics and New Age. I also kept records of the assumed names I'd used—no, I didn't want these people to know my *real* name.

I found a novel use for SynFile's mail-merge capabilities as well. Each record has a long section of text marked Insert. This could contain a sentence designed for a given group. For example, "I am interested in the truths that the scientific establishment won't tell us about." This way, my requests for information don't look like a form letter. And it's a nice way to exercise the database.

In the book, "Give Me that Prime Time Religion" (Oklahoma Book Publishing, 1979), author Jerry Sholes describes how a prominent evangelist uses a sophisticated mail-merge database to help him read, answer and pray over the 20,000 letters he receives daily. The letters are first categorized by problem type—marital problems, physical problems, political fears, etc. Each letter goes into the database and computer-generated replies are sent out with stock paragraphs regarding specific problems. Then the evangelist actually prays over computer-generated lists of addresses.

Granted, in SynFile+ the Inserts would be limited to 255 characters (though you can get around that). But I was doing something roughly comparable to a multi-million dollar direct-mail system—on an Atari 130XE system that cost less than $400.

The project has gone well. My database has nearly 140 addresses, and I have a substantial file of mystical pronouncements, flying saucer blueprints and sure-fire methods for contacting the Advanced Guardian Veknors from Venus Etheria.

ALL KOOKS?

Some **Antic** readers might resent seeing ideas they believe in categorized with others they find irrational. For example, I don't believe in UFOs, so my database has plenty of UFO-oriented groups. The phrase "Kook Mail" is perhaps a bit misleading.

Are they crazy, or creative eccentrics?

Many organizations on my list can best be described as creative eccentrics and are not crazy—not by a long shot. I can't help feeling a kind of respectful affection for the creativity involved.

I was surprised at the project's popularity in my neighborhood. Friends and acquaintances wanted copies of my address list, and suddenly I was in the self-publishing business. SynFile+ generated the initial lists with its Labels function and I expanded the descriptions with AtariWriter.

With a short introduction and a cover made with Print Shop software, the whole 15-page booklet sold pretty well at $4 a copy. And many of my customers have material from other sources, so my list just keeps growing. Here are some original entries—including mistakes in grammar, spelling and punctuation accurately quoted from the sources:

WEIRD SCIENCE

ESP Lab of Texas
Box 216
219 Southridge Drive
Edgewood, TX 75117

Free info
Truly Strange Minds

FUN approach to Magick. NO HOGWASH. Robust, folksy, and intentionally funny mailings for "Astral Al" G. Manning's ESP course tell of correspondence courses, teaching tapes and magickal supplies. Lots of jokes—this is more like David Letterman than Edgar Cayce.

Flat Earth Research Society
Covenant People's Church
Box 2533
Lancaster, CA 93539

Flat Earth News, $10 per year.
Truly Strange Minds

"We have proved earth flat, by experment and can be demenstrated, most is water. . . Gods Law stillstands. . .' water seeks its won LEVEL.. and lays flat." Extremely poor typists are the last bastions of true rationality, fighting the false religion of Science. "We DO NOT SAY FALL OFF FLAT WORLD, WE SAY YOU WOULD ALL OFF THE GREASE BALL WORLD."

RELIGIONS & CULTS

Pyramid of One
251 NW Bailey
Hillsboro, OR 97123

SASE
Top Of the Heap

"Heavenly Emergence of Supreme Being. Highest awareness/grace/healing. Wonderful life transformations. Dynamic activities transcending body/ego/drugs. Unlock gateway to miracles."

POLITICS & CONSPIRACIES

Monster Raving Loony Party
13 Chippenham Mews
London W9, England

Write for info
Hysterically Funny

Remember that Monty Python routine about the election returns, featur-

ing the Silly Party and Tarquin Fintimlinbinwhinbimlin Bus Stop F'tang F'tang Ole Biscuit Barrel? That really happens. Screaming Lord Sutch has been doing this stunt, running for Parliament, for the past several years. His platform is that he would do absolutely nothing, thus following precedent. Dignified British election officials end up having to read the rosters of such groups as the New Year's Eve party and the Bring Your Own Party.

American Imperial Party
Spengler Group
P.O. Box 65085
St. Paul, MN 55165

Free 1-page party platform.
Highly Original

"Had enough of western decline? WE STAND FOR CONQUEST. For men who are ready to own the world." Balance the budget by cancelling 60% of the national debt. Ensure justice by allowing "Star Chamber" courts and holding public executions of existing prisoners. Restore military prestige by assassinating vocal enemies. Restore personal honor by allowing prostitution and open vengeance, and disallowing women drivers. Cure world poverty by allowing slavery, and silencing the journalists who cover it. How serious these guys are is anybody's guess.

LONE ECCENTRICS

All-One-God-Faith
Dr. Bronner
P.O. Box 28
Escondido CA, 92025

Scrolls, $2 each
Top Of the Heap

You may have seen Dr. Bronner's castile soaps in your local health food store. "Teach the moral ABC that unites mankind free, lightning-like, 5-billion strong and we're all-One." Bronner's densely printed labels are PACKED with this stuff. It's good soap too, with a cooling peppermint feel. But "DILUTE. DILUTE." ▲

Butterfingers

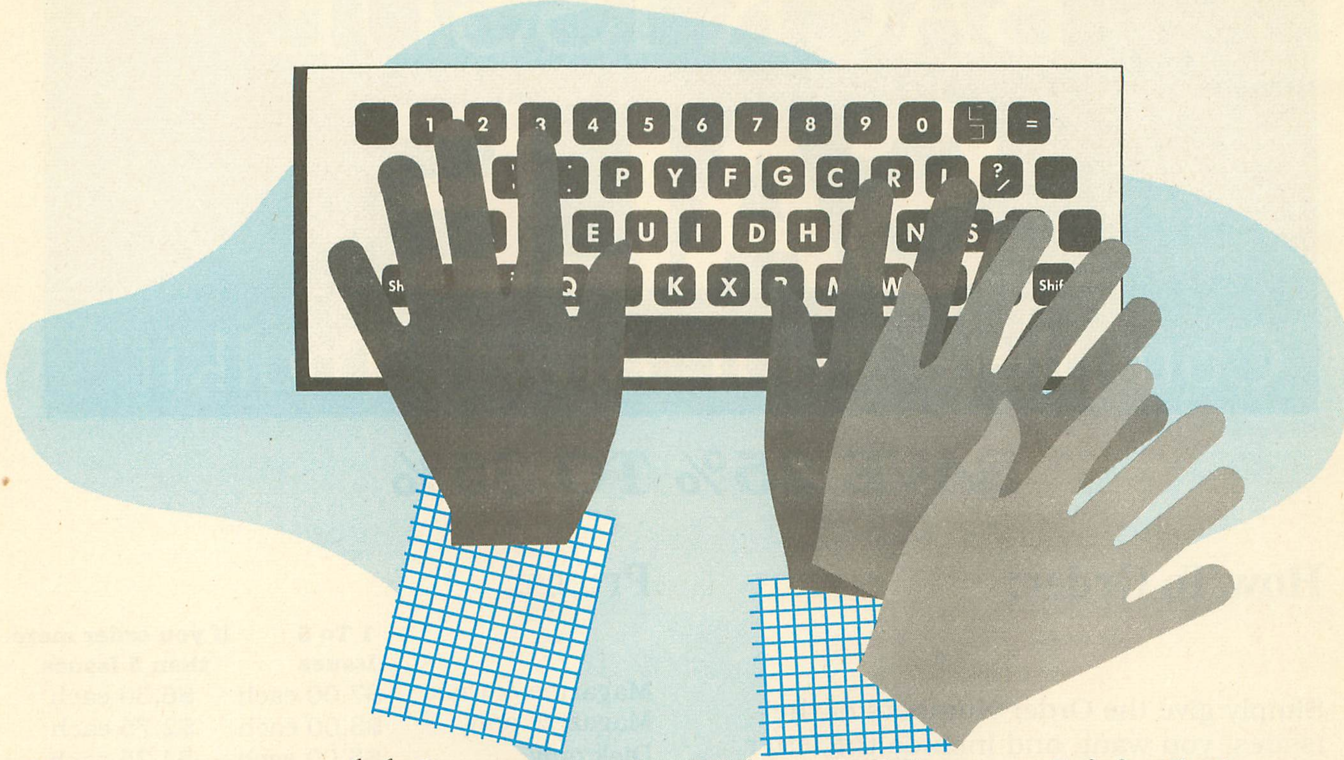
By Kevin Gevatosky

If you ever lost work by pressing the [CLEAR] key when you meant to press [INSERT], Butterfingers is for you. This short BASIC translation of a machine-language routine works on 8-bit Atari computers of any memory size, with disk drive.

The cursor was at the very end of the hundred-plus-character line and I was just about to press [RETURN] when I noticed that I had left out a right parenthesis. So, I moved the cursor over to the spot where I wanted to insert it and ZAP! "#&*@!," I shouted, "my slippery fingers did it again!"

Then came that all-too-familiar sinking feeling that occurs whenever hard programming work disappears right before my eyes. You see, instead of pressing the [CONTROL] and [INSERT] keys, as intended, I accidentally pressed [CONTROL] and [CLEAR] and erased the whole screen. Worse, since I had not yet pressed the [RETURN] key, the line was lost and had to be re-typed.

The Atari's full-screen editor is one of its finest and praiseworthy features, but I think it was a design oversight



No more "Oops, I Hit [Clear]" blues.

to allow the [CONTROL] [CLEAR] key combination to clear the screen when [SHIFT] [CLEAR] would have been sufficient. It's just too close to [CONTROL] [INSERT].

Some of you may be thinking that there is no "design oversight" and I should just be more careful. Well, in my own defense I'll just say that I watch what's displayed on the screen and I don't like to break my concentration and look down at the keyboard. Besides, I don't have dainty little fingers.

So now, after years of tolerating this aggravating situation, I finally realized that there was something I could do about it. If you feel as I do then Butterfingers is for you.

HOW IT WORKS

Butterfingers is a small assembly language routine that loads into memory at Page 6, and uses locations 1536-1621 ($0600-$0655). Make sure your BASIC program does not use any of these locations, or else Butterfingers will not work.

Butterfingers substitutes the operating system's normal keyboard interrupt with a customized one that examines all keystrokes before they are sent to the Screen Editor. When the interrupt detects a key code for [CONTROL] [CLEAR] or [SHIFT] [CLEAR], it filters them out and prevents accidental clearing of the screen.

I did not want to eliminate the clear-screen function entirely, just make it more difficult to access. So the routine lets you clear the screen by simultaneously pressing [CONTROL] [SHIFT] [CLEAR].

LOADING THE PROGRAM

Type in Listing 1, FINGERS.BAS, check it with TYPO II and be sure to SAVE a copy before you RUN it.

When RUN, the program creates a binary file named FINGERS.EXE. This file should be copied onto another disk containing DOS.SYS, and renamed AUTORUN.SYS. Antic Disk owners will find FINGERS.EXE on the monthly disk.

FINGERS.M65 is the MAC/65 assembly language source code, and is provided mainly for study purposes. You do not need to type Listing 2 to use Butterfingers.

Once you have Butterfingers on disk as an AUTORUN.SYS file, turn off your Atari. Place your Butterfingers disk in drive 1, and turn on your Atari. The program will load and run automatically. Since the program works *with* Atari BASIC, XL and XE owners *should not* hold down the [OPTION] key when turning on the computer. Once enabled, Butterfingers will remain active until you turn off your Atari. NOTE: Butterfingers also works with many other languages, including TurboBASIC, BASIC XL, Atari Microsoft BASIC. It will *not* work with MAC/65, even when the code is relocated off Page 6.

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*Kevin Gevatosky is a software engineer in Eugene, Oregon. His first **Antic** article,* BASIC Tracer, *appeared in the September 1986 issue. As Atari consultant for Covox, Inc. he helped develop the Voice Master speech digitizer used in this issue's Super Disk Bonus.*

Listing on page 45

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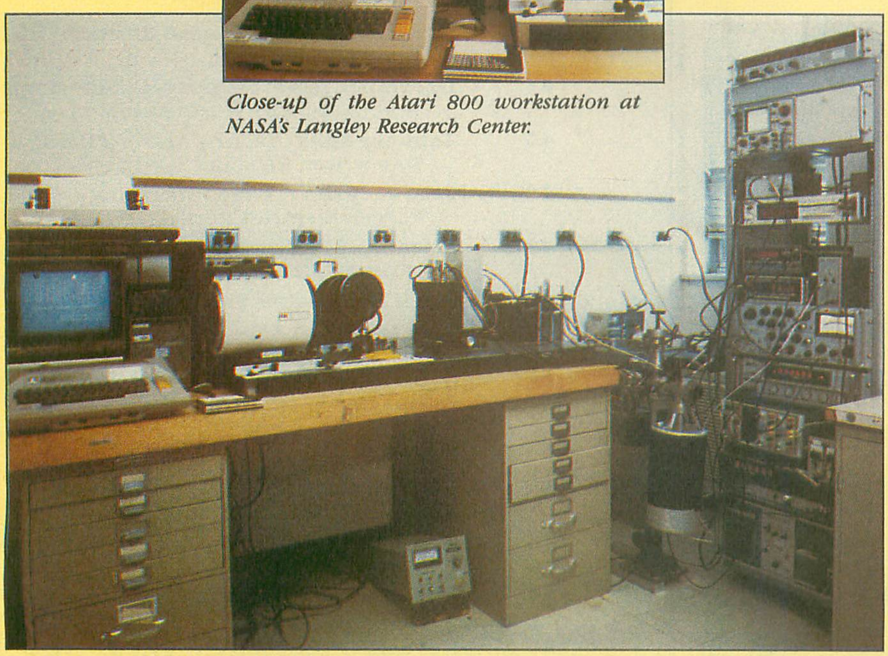
SPACE-AGE ATARI

NASA research *8-bit* *style*

By George Lockard



Close-up of the Atari 800 workstation at NASA's Langley Research Center.



Atari 800 workstation at NASA's Langley Research Center.

In the highly technological and scientific environment of NASA's Langley Research Center at Hampton, Virginia, we use an expanded Atari 8-bit computer system daily.

The Atari computer system was surplus equipment, and although it had some age on it when I acquired it, the system was still in fine working order and has performed well since. I have used Atari 8-bit computer systems in several professional applications instead of the "Big" machines, at considerable savings, and they have performed extremely well.

Langley is assembling and testing the Halogen Occulation Experiment (HALOE) satellite instrument for flight on the Upper Atmospheric Research Satellite (UARS) to be launched by late 1991. HALOE will measure and monitor seven gases which are critical to understanding atmospheric chemistry.

These gases are measured by optical detectors. The detectors have to be tested and characterized extremely well. One of the tests performed is the measurement of the linearity of the detector's response to various signals.

It is in this test set-up that the Atari system is utilized.

The system hardware consists of an Atari 800 with an Axlon 128K memory expansion board, an Indus disk drive, an Axlon IMP printer with printer interface and a Panasonic color computer monitor. The system software consists of only a few commercial software products, mainly Letter Perfect, Data Perfect and B/Graph. Most of the software that is used is custom written to meet the system requirements.

The Atari computer is put to use in several ways. Some programs were written to generate tables and charts to be used in determining the equipment settings for the required test conditions, while special programs have been developed to enable it to perform data reduction and analysis of the measured data. This information, along with the measured data, is loaded into the main program which then compares the test results with the test requirements, to determine if the detectors met the spaceflight specifications.

Programmed comments are displayed on the screen to inform the operator of various conditions of the test. All of the computational and measured results are also available to the operator for review. When the operator is satisified, the general housekeeping information, along with operator comments, is then recorded.

Our Atari 800 analyzes HALOE data.

Formatted calibration/test result sheets are printed out and the results are saved, since we are required to keep all of the test data and results until UARS becomes inoperative. Status reports with graphs are generated using the Atari's word processing capabilities. These reports are distributed throughout NASA for review by the appropriate responsible individuals.

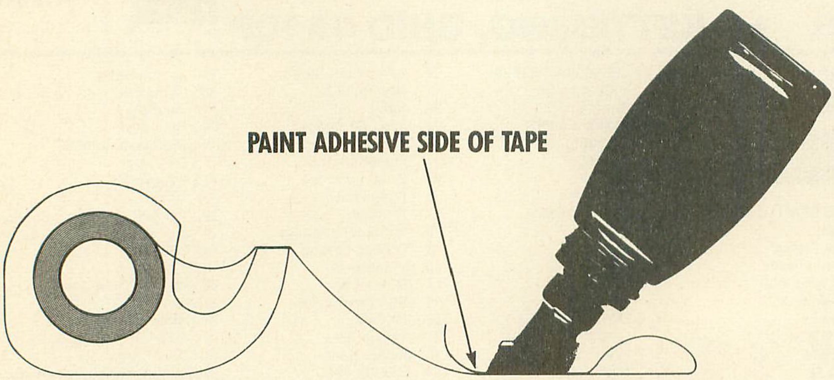
Atari 8-bit computers such as the 130XE and the 800 series may not have the speed, memory and graphics resolution of the more powerful and expensive 16 and 32 bit computers around today, but they should not be overlooked as the low-cost and highly efficient computers that they are. I have found that Atari lives up to its slogan, "Power without the Price."

George Eugene Lockard is an Engineering Technician who has a 15-year background working with electronics at NASA.

SIMMONS THERMAL RIBBONS

Ink your own • get better copies

By Thomas Simmons



It's hard to resist those low prices on thermal printers. However, there are two drawbacks to these apparent bargains. Ribbons are expensive, one-shot items and the printed copy is generally of low quality, usually too light.

Now I have come up with a way to ink your own ribbons—and get better copies.

SIMMONS THERMAL RIBBONS

Prices for thermal ribbons can range as high as six dollars each. Do you want to pay fifty cents per page of printout? Of course not. So why not do-it-yourself and make Simmons' Thermal Tapes? For about thirty-three cents you can make yourself 200 yards of thermal tape. Here is what you need:

Scotch Tape in 200 yard rolls, 1/2 inch width.

Black liquid shoe polish.

Unwind the Scotch tape on a sheet of newspaper, spreading the liquid shoe polish on the sticky side of the tape. Let the tape dry thoroughly. When you have coated all the tape, rewind it into a roll.

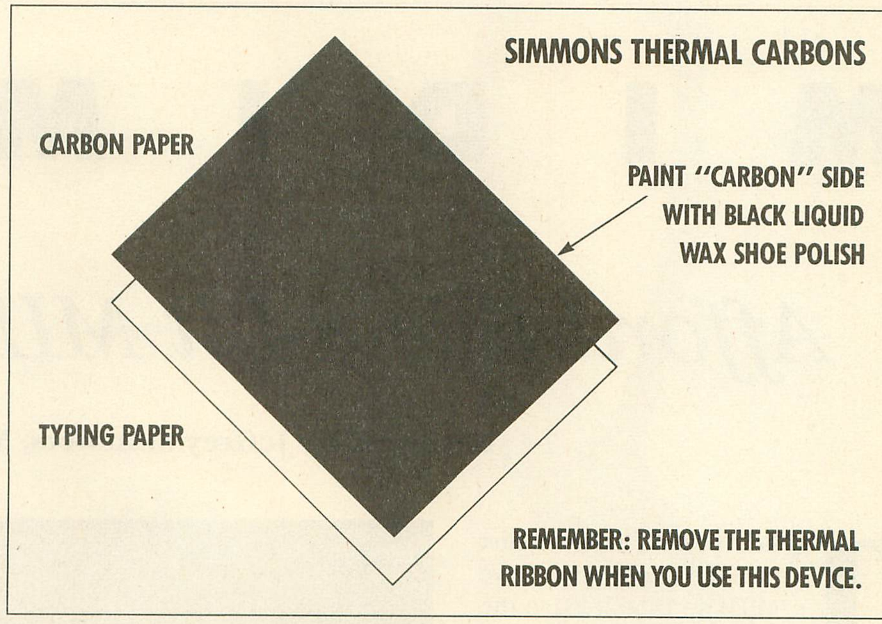
Properly coated, the tape will no longer be sticky. The liquid shoe pol-

ish is a wax that clings to the sticky part of the tape. When you wind this tape on the spools of your thermal printer, be sure that the waxy side faces the paper on which you will print. Otherwise, the printhead will clog with wax and nothing will print. (*Antic holds no responsibility for any damages resulting from use of the techniques described in this article.*—ANTIC ED)

When you print, the thermal pins of the dot-matrix momentarily heat the smooth side of the tape. This heat melts the black wax of the shoe polish, which immediately transfers to the typing paper. The result is permanent and waterproof, producing a high quality, non-smear printout! Try it, and you'll quickly be convinced that my Simmons Thermal Tape idea is pure genius, or pure Shinola, depending on the type of shoe polish you use.

This process will also work on your old Atari 825 dot-matrix printer. Just put the liquid shoe polish on your printer ribbon and start printing. The waxy polish actually preserves the ribbon and there is no drying out. Cost: about three cents per ribbon re-inking! A caution, however: there *will* be a wax buildup on your printhead that needs periodic cleaning.

If you have a craving for color, you might try taking a wax crayon to your adhesive tape. Mark the sticky side of the tape with any color of crayon. Be careful to cover the tape thoroughly with the crayon. Then wind the tape onto your printer spools. As before, make sure you print with the sticky side toward the paper you're printing on.



SIMMONS THERMAL CARBONS

You can also make your own thermal carbons. Go out and buy the cheapest carbon paper you can find. It is generally low quality stuff, made of thin, almost plastic, paper. This works to your advantage when it comes to heat-transfer printing.

Take that bottle of black liquid shoe polish and evenly paint the carbon side of the paper. Let it dry.

Put the dry carbon paper on top of a clean sheet of typing paper, painted side down. Take the old thermal tape out of the printer and insert the paper with the back of the carbon paper facing the printhead. The thermal dot-matrix pins strike the carbon paper and transfer a brilliant black wax image to your typing paper.

Depending on the price of your typing paper, the cost should be about two cents per page. This goes down to a fraction of a cent per page of print, if you re-coat the same carbons. How's that for home-grown savings?

NOTE: *Don't* use this technique with the Atari 1027 printer. You really must have the proper ink rollers to get the high quality results this printer is capable of.

Not only does black liquid shoe polish work well on home-made ribbons for thermal printers and the Atari 825, it is also excellent for touching up grey streaks in your hair. If you're bald like me, all you can do is put it on your shoes and use it with your printers.

The result is a permanent, waterproof, high quality, non-smear printout!

Thomas Simmons' areas of expertise include CAT scan technology, nuclear magnetic monitoring, medical sensor construction, and creating handy do-it-yourself projects for the Atari. His quirky, but practical, tips have previously appeared in the May and June 1987 issues of **Antic.**

MIDIMAX

Affordable 8-bit MIDI choice.

Reviewed by Jeffrey Summers, M.D.



The ATARI ST was the first personal computer to have MIDI ports built in, so the computer could communicate directly with electronic instruments. Atari 8-bit computers can also support MIDI, but require an interface to do so. One such device is **MIDIMAX**, from Wizztronics.

The MIDIMAX interface is supplied in a package with the MIDI Music System sequencing program, and another program that will convert files from the popular AMS public domain format into MIDI Music System format. Several songs demonstrating the power of MIDI Music System are also included, such as "Flight of the Bumble Bee," "Maple Leaf Rag," and the "Beverly Hills Cop" Theme.

The interface itself is a small, compact unit, about the size of an Atari XM301 modem. It is powered through the serial bus of the computer. It has a connector, so it does not need to be at the end of the daisy chain.

Since it's powered by the serial bus MIDIMAX has the advantage of not requiring a transformer (I'm running out of outlets on my power strip). Unfortunately, this has the disadvantage of causing a voltage drop that might affect the performance of other similar devices. I have used MIDIMAX in conjunction with ICD's P:R: Connection without incident, however.

The metal case appears to be quite sturdy. There are MIDI in and MIDI out connectors, but no MIDI thru. Two MIDI cables are supplied for connecting to your instrument. The interface works without problem.

8-bits require an interface like MIDIMAX.

MIDI MUSIC SYSTEM

MIDI Music System is the sequencing program supplied with MIDIMAX. A sequencer sends a series of notes or instructions to an instrument. MIDI Music System is a full-featured sequencer with 99 tracks, 20 of which may be sent over any of the 16 MIDI channels. MIDI Music System also sends MIDI clock information, allowing you to control drum machines.

Each note in each track is entered as "note-octave-duration." For example, C4Q will play middle C for the duration of one quarter note.

Notes may be entered from a MIDI keyboard as well. However, MIDI Music System does not time how long a note was played. A buffer holds the notes as you play them, and you must then add the note durations from the computer keyboard.

Simple commands let you make

changes in patches, key, tempo, pitch wheel and velocity. Controller changes (mod wheel, volume changes, etc.) use a generic statement to set parameters. For example, P7,102 sets controller number 7 to 102. (P7 is the volume controller for most synthesizers).

AMS TO MMS

The conversion program between AMS (Advanced Music System) and MIDI Music System is quite useful, because AMS files are commonly found in user group libraries and on bulletin boards. After conversion to MIDI Music System, you can play these songs on your synthesizer—much more pleasing than the bleeps that the computer produces.

The program does not always seem to correctly translate the files, however. It has particular difficulty with songs that use odd timings for notes, such as triplets. There are other public domain conversion programs that do a better job. The program supplied is better than nothing, but I suggest finding one of the other programs on your local bulletin board, or on GEnie or CompuServe.

The manual covers the MIDI Music System program in depth and is quite complete. However, there is no technical information regarding the interface itself. This makes it difficult (though not impossible) to write your own programs using the interface. At least one MIDI handler is available as shareware.

The only problems I have run into in about 6 months of use are probably not related to the interface or software. With my Casio CZ synthesizer, certain notes seem to be "lost" — not played. The problem occurs most often when a lot of MIDI information is being sent.

I wrote to Wizztronics about the problem. They confirmed that there is a problem, but only with Casio CZ synthesizers. (Other MIDI interfaces apparently have the same problem with the CZ.) So, I purchased a Roland MT-32 tone generator (a tone generator is essentially a synthesizer without keys) and since then have had no problems when using MIDIMAX.

Essentially, an 8-bit user who wishes to experiment with MIDI has two choices: buy an ST or buy a MIDI interface. The ST is a powerful machine, with good MIDI software availability—but it costs a heck of a lot more. There may not be as much software available for the 8-bit user, but the money you save on computers can buy you an extra piece of sound equipment. MIDIMAX is a good package and an excellent introduction to MIDI for 8-bit users. ▲

$229. Wizztronics, P.O. Box 122, Port Jefferson Station, NY 11776. (516) 473-2507.

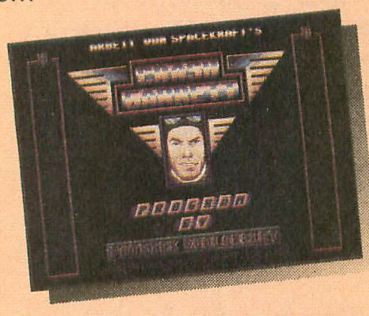
TERRIFIC SOFTWARE PRESENTS

TWO NEW, SENSUOUS GAME TITLES

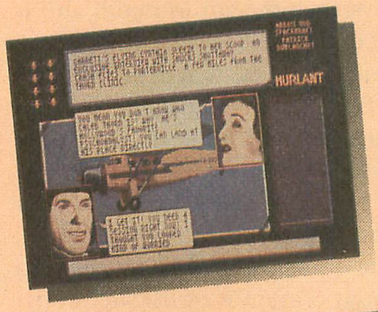
Look out, Indiana Jones! Step aside, Bogie! *Crash Garrett's* in town!

Don't wait 'till Sunday to catch-up on your favorite action comic — play *CRASH GARRETT* instead!

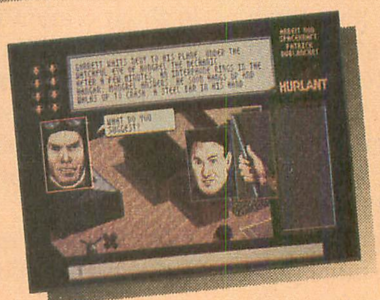
No other adventure game is quite like this…

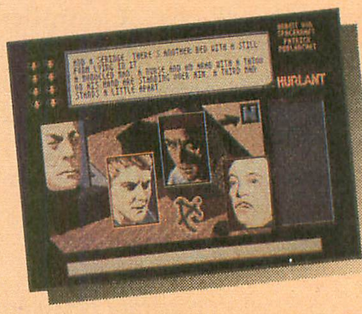


Let ace flyer *CRASH GARRETT* escort you through Hollywood in the '30s to rescue sultry, sexy gossip columnist, Cynthia Sleeze, from the sinister Nazi



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superhumans. Be the voice in CRASH's head as he encounters adventure after adventure with a whole group of wacky, depraved characters including Caleb Thorn, psychoanalyst to the stars, and Lotta Linebacker, a female wrestler who knows what she wants from a man!

CRASH GARRETT is style and pizzazz—an animated comic book with a slick, continental look. It's about as much terror, intrigue and suspense you'll want from any game!

Play *Stir Crazy With Bobo*—

Your idea of "doing time" will definitely change!

Had a little too much violence lately? Still want fun and action? Well, grab your joystick and join poor Bobo in six of the most graphically amusing adventure games ever on disk.



Bobo's in prison—INZEESLAMMER—where he spends most of his time performing menial chores and planning his escape. Bobo's *no penal pushover!*

Bobo starts his day feeding porridge to hungry, irritable prisoners. Don't



let him get too befuddled, or else he'll end up with the porridge bucket on his head.

K.P.'s next. Speed is the key here. Don't let Bobo get buried underneath a pile of spuds!



An exhausted Bobo tries to catch up on his beauty sleep, but is constantly interrupted by the relentless snoring of his cell mates.

Finally Bobo makes his escape and hurtles off into the sunset, right onto electric train cables. Bobo needs some pretty fancy footwork to avoid the pulsating current!



Available for Atari ST* and Amiga® Computers at your favorite store. To order by phone, call 800-234-7001.

CRASH GARRETT— 39^{95}

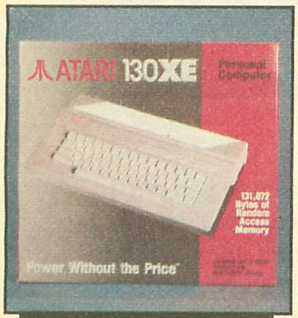
STIR CRAZY with Bobo— 34^{95}

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B605

Two Books for Atari Users

Quest For Clues, Official Print Shop Handbook. Reviewed by Chester Cox

QUEST FOR CLUES

There are a lot of addicted but frustrated adventure gamers out there. Maybe you're one of them—I know I am! I know of no less than five trade paperback books full of hints for various adventures—plus dozens of hintbooks for individual adventures.

Newest of the lot is **Quest for Clues**. The editor is something of a legend himself—Shay Addams, who puts out the adventure games newsletter QuestBusters and has supposedly played more adventures than anyone else alive. The book covers fifty games, but only 21-35 are of interest to Atari owners—21 if you own an XL/XE, 30 if you own an ST, 35 if you own both. Games as recent as 1986-7 are covered, including the chilling Lurking Horror, the groundbreaking Pawn, and the heartbreaking Ultima IV.

But Quest for Clues is often just as confusing as the original adventures. Instead of giving straightforward hints, Addams chooses to encrypt his clues. By looking at the Code Key—or memorizing the simple cypher—and transposing letters, you can tediously spell out clues or solutions. To further muddle things, the adventures are not arranged in alphabetical order. Instead, they are arranged within chapters titled Disk Drive Detectives, Fantasy Lands and so on. If Addams is trying to keep players from the very real temptation of looking up all the clues at once, he has committed overkill.

Quest for Clues, like the newsletter it springs from, assumes you want an entire walk-through of an adventure. Usually, only one or two puzzles stop you in a story. Individual hints leave some portion of your pride intact. A walk-through leaves me feeling that the author thinks I'm too stupid to finish an adventure on my own. If you prefer the satisfaction of solving a puzzle yourself, but need just a little help, Quest might be more than you want.

On the other hand, the maps are some of the very best I've seen for any adventure. I found no errors in any of them. If you're like me, and dislike clues but love maps, you'll love Quest for Clues.—CHESTER COX

$19.95. Origin Systems. Distibuted by Broderbund Software, 17 Paul Drive, San Rafael, CA 94903. (415) 492-3500.

OFFICIAL PRINT SHOP HANDBOOK

Broderbund's popular Print Shop software is so simple to use that many people have never even bothered to read the original manual. So Bantam's **Official Print Shop Handbook** by Randi Benton and Mary Schenck Balcer almost looks like a cheap attempt to sucker P.S. fans out of $17.

But the large-format paperback book is loaded with shortcuts, ideas and gimmicks we hadn't figured out on our own. It's handy having all these references in one book, and there are also many templates and examples that should prove irresistable.

The writers assume that Print Shop is only available for Apple II, Commodore, and IBM. But the fonts, graphics and disks listed match with the Atari disks, so the book is compatible.

The authors recommend creating a template box marked so you can determine where an icon would be sized within it. By printing these boxes in various formats (staggered, tiled, etc.) and sizes, you'll have a series of blank forms to help you determine how your finished Print Shop sign, letterhead, card, or banner will look. This addresses one of Print Shop's greatest faults: Print Shop does not preview the final form to your screen.

Dozens of shortcuts are thrown out in a shotgun approach. Easy hints on double printing (winding the paper back to a specific spot to print on top of another printed form) are given, with some classy results shown. Some of the ideas will be unnecessary for longtime users. **Antic** has shown how to print labels with Print Shop icons (April 1987), create envelopes to fit P.S. cards (December 1987)—and how to use P.S. fonts in a better banner program (July 1988). Also there are many public domain and commercial products that use Print Shop icons and fonts in unexpected ways.

Still, there's enough useful information here for the daily Print Shop user to earn this book a place on the desk just above the monitor. Best of all, many of the tips and graphic design principles in the handbook are useful with other printware. By keeping instructions and hints at the most basic level, the Official Print Shop Handbook becomes applicable to, well, everyday life. And that's where my Atari has always belonged.—CHESTER COX

$16.95. Bantam Computer Books, 666 Fifth Avenue, New York, NY 10103. (212) 765-6500.

SOFTWARE LIBRARY

TYPING SPECIAL ATARI CHARACTERS

The Atari Special Characters and the keys you must type in order to get them are shown below:

For [CONTROL] key combination, *hold down* [CONTROL] while pressing the next key. For inverse [CONTROL] [A] through [CONTROL] [Z], press the [◪] key—or [⅄] on the 400/800—then *release* it before pressing the next key. (Press [◪] or [⅄] again to turn off inverse.) For [ESC] key combinations, press [ESC] and then *release* it before pressing the next key.

Carefully study the chart above and pay close attention to differences between lookalike characters such as the slash key's [/] and the [CONTROL] [F] symbol [◪].

NORMAL VIDEO

FOR THIS	TYPE THIS	FOR THIS	TYPE THIS
♥	CTRL ,		CTRL S
	CTRL A		CTRL T
	CTRL B		CTRL U
	CTRL C		CTRL V
	CTRL D		CTRL W
	CTRL E		CTRL X
	CTRL F		CTRL Y
	CTRL G		CTRL Z
	CTRL H		ESC ESC
	CTRL I		ESC CTRL -
	CTRL J		ESC CTRL =
	CTRL K		ESC CTRL +
	CTRL L		ESC CTRL *
	CTRL M		CTRL .
	CTRL N		CTRL ;
	CTRL O		SHIFT =
	CTRL P		ESC SHIFT CLEAR
	CTRL Q		ESC DELETE
	CTRL R		ESC TAB

INVERSE VIDEO

FOR THIS	TYPE THIS
	ESC SHIFT DELETE
	ESC SHIFT INSERT
	ESC CTRL TAB
	ESC SHIFT TAB
	⅄ CTRL .
	⅄ CTRL ;
	⅄ SHIFT =
	ESC CTRL 2
	ESC CTRL DELETE
	ESC CTRL INSERT

TYPO II AUTOMATIC PROOFREADER

TYPO II automatically proofreads **Antic**'s type-in BASIC listings. Type in the listing below and SAVE a copy to disk or cassette. Now type GOTO 32000. At the prompt, type in a single program line **without the two-letter TYPO II code at the beginning**. Then press [RETURN].

Your line will reappear at the bottom of the screen. If the TYPO II code does not match the code in the magazine, then you've mistyped your line.

To call back a previously typed line, type [*], then the line number, then [RETURN]. When the completed line appears, press [RETURN] again. This is how TYPO II proofreads itself.

To LIST your program, press [BREAK] and type LIST. To return to TYPO II, type GOTO 32000. To remove TYPO II from your program, type LIST "D:FILENAME",0,31999, then [RETURN], then NEW, then ENTER "D:FILENAME", then [RETURN]. Now you can SAVE or LIST your program to disk or cassette.

Don't type the TYPO II Codes!

```
WB 32000 REM TYPO II BY ANDY BARTON
VM 32010 REM VER. 1.0 FOR ANTIC MAGAZINE
HS 32020 CLR :DIM LINE$(120):CLOSE #2:CLO
   SE #3
BN 32030 OPEN #2,4,0,"E":OPEN #3,5,0,"E"
YC 32040 ? "↖":POSITION 11,1:? "TYPO II"
EM 32050 TRAP 32040:POSITION 2,3:? "Type
   in a program line"
HS 32060 POSITION 1,4:? " ":INPUT #2;LINE
   $:IF LINE$="" THEN POSITION 2,4:LIST B
   :GOTO 32060
XH 32070 IF LINE$(1,1)="*" THEN B=VAL(LIN
   E$(2,LEN(LINE$))):POSITION 2,4:LIST B:
   GOTO 32060
TH 32080 POSITION 2,10:? "CONT"
MF 32090 B=VAL(LINE$):POSITION 1,3:? " ";
NY 32100 POKE 842,13:STOP
CN 32110 POKE 842,12
ET 32120 ? "↖":POSITION 11,1:? " TYPO II 
   ":POSITION 2,15:LIST B
CE 32130 C=0:ANS=C
QR 32140 POSITION 2,16:INPUT #3;LINE$:IF
   LINE$="" THEN ? "LINE ";B;" DELETED":G
   OTO 32050
VV 32150 FOR D=1 TO LEN(LINE$):C=C+1:ANS=
   ANS+(C*ASC(LINE$(D,D))):NEXT D
WJ 32160 CODE=INT(ANS/676)
JW 32170 CODE=ANS-(CODE*676)
EH 32180 HCODE=INT(CODE/26)
BH 32190 LCODE=CODE-(HCODE*26)+65
HB 32200 HCODE=HCODE+65
IE 32210 POSITION 0,16:? CHR$(HCODE);CHR$
   (LCODE)
VG 32220 POSITION 2,13:? "If CODE does no
   t match press  RETURN  and edit line a
   bove.":GOTO 32050
```

PLAY WITHOUT WORRYING ABOUT LOST PEGS

CRIBBAGE ATARI

Article on page 14

LISTING 1

Don't type the TYPO II Codes!

```
AH 2 REM CRIBBAGE ATARI!
NQ 4 REM BY DAVID C. OSBORN
PF 6 REM (c)1989, ANTIC PUBLISHING INC.
PO 10 GRAPHICS 2:DBUG=0:P=0:C=P:POKE 710,
   P:GOSUB 2560:REM TITLE
VK 20 ? :? :? "   Enter Timing Delay 0-9
              ( 0 = Fast, 9 = Slow )
   ";
QF 30 TRAP 20
KB 40 INPUT D
JV 50 GOSUB 2430:D=D^2
TT 60 RESTORE 2970:LP=XX:GRAPHICS 18:GOSU
   B 505:POKE 756,AA:FOR BB=708 TO 712:RE
   AD EE:POKE BB,EE:NEXT BB
OZ 65 RESTORE 2620
TB 70 POSITION 4,4:? #6;"()L*!       !_P-,"
   :L3$="1& 3' 5( 7(":L4$="2F 4( 6( 8(":P
   OSITION 16,7:? #6;"$$"
TB 80 POSITION 4,1:? #6;"!_P:.#":POSITION
    2,2:? #6;"1& 2F 3' 4( 5( 6(":POSITION
    2,3:? #6;"$$ $$ $$ $$ $$ $$"
HL 90 NC=CR:GOSUB 840:FOR AA=0 TO 12
AX 100 C(AA)=INT(RND(0)*52)+1:V(AA)=C(AA)
   :S(AA)=0
KV 110 IF AA THEN FOR BB=0 TO AA-1:IF C(B
   B)=C(AA) OR C(AA)>52 THEN 100
YT 120 IF AA THEN NEXT BB
PN 130 IF V(AA)>13 THEN V(AA)=V(AA)-13:S(
   AA)=S(AA)+1:GOTO 130
CN 140 K(AA)=V(AA)+16:IF V(AA)<9 AND V(AA
   )-1 THEN 200
RG 150 IF V(AA)=1 THEN K(AA)=97
LQ 160 IF V(AA)=10 THEN K(AA)=31
AO 170 IF V(AA)=11 THEN K(AA)=98
SO 180 IF V(AA)=12 THEN K(AA)=27
NS 190 IF V(AA)=13 THEN K(AA)=100
QN 200 F(AA)=S(AA)+123:IF S(AA)=2 THEN F(
   AA)=96
RC 210 IF S(AA)<2 THEN K(AA)=K(AA)+96:F(A
   A)=F(AA)+96:IF K(AA)<192 THEN K(AA)=K(
   AA)+64
FC 220 NEXT AA:FOR AA=0 TO 12:M(AA)=AA:NE
   XT AA:LL=0:HH=5:GOSUB 1140
JL 230 FOR AA=0 TO 12:N(AA)=V(AA):IF N(AA
   )>10 THEN N(AA)=10
NV 240 REM COMPUTER'S CRIB PICK
QQ 250 NEXT AA:LL=0:HH=5:GOSUB 2390:GOSUB
    1140:GOSUB 870:POSITION 18,5:? #6;"$"
   :SOUND 0,5,6,10:AA=AA^1
VY 260 SOUND 0,0,0,0
NK 270 REM COUNT POINTS
OB 280 REM PLAYER'S CRIB PICK
UN 290 NN=16:FOR CC=0 TO 1:GOSUB 700:POSI
   TION XX+1,YY:? #6;"  ":POSITION 14+CC,
   5:? #6;"$":TW=XX*CC:WO=XX+WO-TW
UF 300 FOR DD=1 TO 61:SOUND 0,DD,10,8:NEX
   T DD:SOUND 0,0,0,0
RZ 310 GOSUB 2060:NEXT CC:IF WO=TW THEN H
   H=5:POSITION 14,5:? #6;"  ":WO=0:TW=0:
   LL=0:GOSUB 1140:GOTO 290
VA 320 WO=INT((WO+1)/3):TW=(TW-1)/3:CR(1)
   =M(WO):CR(2)=M(TW):LL=0:HH=3:GOSUB 239
   0:BB=-1:FOR AA=0 TO 5
QO 330 IF M(AA)-CR(1) AND M(AA)-CR(2) THE
   N BB=BB+1:M(BB)=M(AA)
VT 340 NEXT AA:LL=0:HH=3:GOSUB 2390:POSIT
   ION 13,2:? #6;"       ":GOSUB 1140:COLO
   R K(12):PLOT 16,7:COLOR F(12)
OH 350 PLOT 17,7:IF V(12)=11 THEN WH=CR:P
   T=2:GOSUB 2090:POSITION 3,10:? #6;"FK
   EP 2":GOSUB 2060
KS 360 HH=1:RC=CR:FOR AA=4 TO 7:M(AA)=M(A
   A+2):NEXT AA:FOR AA=8 TO 11:M(AA)=CR(A
   A-7):NEXT AA
OW 370 REM THE PLAY
AN 380 P$="                  ":FOR AA=6 TO 7:PO
   SITION 1,AA:? #6;P$:NEXT AA:TT=0:PL=0:
   JJ=1:GOSUB 840
HU 390 MM=1:BB=0:POSITION 9,10:NC= NOT RC
   :FOR AA=0 TO 7
XC 400 IF N(M(AA))>10 THEN NEXT AA:WH=RC:
   BB=1:PT=1:? #6;" I":MM=0:GOSUB 2090:GO
   TO 520
KJ 410 FOR AA=NC*4 TO NC*4+3
QP 420 IF TT+N(M(AA))>31 THEN NEXT AA:POS
   ITION 9,10:WH=RC:NC=RC:? #6;" I":GOSUB
    2060:POSITION 9,10
MR 430 FOR AA=NC*4 TO NC*4+3:IF TT+N(M(AA
   ))>31 THEN NEXT AA:FF=1:? #6;" I":PT=1
   :GOSUB 2090:GOSUB 2060:GOTO 380
RA 440 HH=1:POSITION 1,10:? #6;P$:POSITIO
   N 9,10:? #6;TT:IF RC=NC THEN RC= NOT R
   C:CO=CO+3:PL=PL+1:HH=0:GOTO 460
VX 450 PL=PL+1:CO=3*INT((PL+1)/2)-2:RO=7
SB 460 IF RC THEN RO=6:JJ=0:GOSUB 1390:?
   #6;"  ":GOSUB 2060
XC 470 IF NC THEN GOSUB 1160
XO 480 GOSUB 1430:GOSUB 1460:RC=NC:CT=0:N
   (M(AA))=N(M(AA))+50:JJ=TM:GOSUB 2060:P
   OSITION 1,9:TM=JJ
WD 490 IF TT<31 THEN 390
UF 500 POSITION 1,CL1:? #6;L3$:POSITION 1
   ,RW1:? #6;L4$:GOTO 380
ZW 505 IF DBUG=0 THEN POKE 16,112:POKE 53
   774,112
ZT 506 RETURN
FQ 510 REM PLAY IS OVER
QG 520 GOSUB 2070:P$="                    "
   :ZZ=0
DM 530 REM CLEAR SCREEN
QI 540 FOR AA=0 TO 7:N(M(AA))=N(M(AA))-50
   :NEXT AA:FOR AA=1 TO 10:POSITION 1,AA:
   ? #6;P$:NEXT AA:NC=ABS(CR-1)
VV 550 REM IF ZZ THEN ALL THREE COUNTED
   AND WE'RE READY FOR THE NEXT HAND
CF 560 IF ZZ THEN ZZ=0:POP :POP :GOTO 70
GJ 570 FOR AA=0 TO 12:C(AA)=M(AA):NEXT AA
   :FOR AA=5 TO 8:M(AA)=C(AA-1):NEXT AA:L
   L=10:HH=13
EJ 580 FOR AA=10 TO 13:M(AA)=C(AA-2):NEXT
    AA:FOR AA=0 TO 2:BB=AA*5+4:M(BB)=C(12
   ):NEXT AA:GOSUB 2390
IY 590 REM SET UP SCREEN
EJ 600 RE=0:L1$=" !_P :.#":L2$=" %! :.#":
   IF NC THEN P$=L1$:L1$=L2$:L2$=P$:RE=5:
   P$="                 "
HG 610 POSITION 3,1:? #6;L1$:POSITION 3,3
   :? #6;L2$:POSITION 5,5:? #6;"() -,"
SW 620 POSITION 14,4:? #6;"&./P":CO=15:RO
   =5:AA=14:TT=100:GOSUB 1430:POSITION 1,
   10:? #6;P$
BD 630 REM COUNT HAND
UJ 640 RO=2:WH=NC:LL=RE:GOSUB 1670:WH=CR:
   RE=ABS(RE-5):POSITION 1,10
LM 650 REM COUNT SECOND HAND
FI 660 RO=4:LL=RE:WH=CR:GOSUB 1670
BU 670 REM COUNT CRIB HAND
BA 680 RO=6:LL=10:GOSUB 1670
TT 690 CR=NC:ZZ=1:GOTO 540
PD 700 CE=0:XX=1:YY=3:BB=0:COLOR 130:PLOT
    1,3:DD=0
CH 710 POKE 694,0:POKE 702,64:IF LP=75 TH
   EN CLOSE #1:OPEN #1,4,0,"K:":GET #1,DD
   :CLOSE #1:GOTO 760
LT 720 ST=STICK(0):IF ST>8 AND STICK<12 T
   HEN DD=43
QZ 730 IF ST<8 THEN DD=42
OR 740 POKE 77,0:IF STRIG(0)=0 THEN DD=62
YQ 750 IF ST=15 AND DD-62 THEN 720
EF 760 IF DD>42 THEN BB=0
CH 770 FOR ZZ=1 TO NN STEP 3:COLOR 128:PL
   OT 1,3:IF ZZ-CE THEN COLOR 128:PLOT ZZ
   ,YY
FI 780 NEXT ZZ:IF DD=62 THEN RETURN
WB 790 IF STRIG(0)=0 THEN DD=62
IO 800 IF DD<43 THEN BB=6
XN 810 CE=XX:XX=XX+BB-3:IF XX<1 THEN XX=N
   N
WU 820 IF XX>NN THEN XX=1
WG 830 SOUND 0,DD*3,10,6:COLOR 130:PLOT X
```

```
   X,YY:XX=XX^1:SOUND 0,0,0,0:GOTO 710
WZ 840 REM DISPLAY PLAY ORDER INDICATORS
XD 850 CL1=5:RW1=8:POSITION 15,6:? #6;"&.
   /P":IF NC THEN POSITION 14,4:? #6;"%!
   ":CL1=8:RW1=5
SL 860 POSITION 1,CL1:? #6;L4$:POSITION 1
   ,RW1:? #6;L3$:RETURN
AR 870 REM ASSIGN POSSIBLES & SORT THEM
UN 880 RESTORE 2590:SC=0:FOR RP=0 TO 14:C
   T=1:FOR BB=6 TO 11:READ CC:M(BB)=CC:NE
   XT BB:LL=6:HH=9:GOSUB 2390
SB 890 IF RP=7 THEN POSITION 17,5:? #6;"$
   ";:SOUND 0,5,6,2:AA=AA^1:SOUND 0,0,0,0
HO 900 REM PAIRS
TI 910 FOR BB=6 TO 8:IF V(M(BB))=V(M(BB+1
   )) THEN CT=CT*CT+2
LI 920 REM CHECK FOR STRAIGHTS
AC 930 NEXT BB:BB=V(M(6)):CC=V(M(7)):DD=V
   (M(8)):EE=V(M(9)):IF BB=CC-1 AND BB=DD
   -2 THEN CT=CT+3
JK 940 IF BB=DD-1 AND BB=EE-2 THEN CT=CT+
   3
LS 950 IF CC=DD-1 AND CC=EE-2 THEN CT=CT+
   3
TR 960 IF BB=CC-1 AND BB=DD-2 AND BB=EE-3
    THEN CT=CT-2
HH 970 REM VALUE OF CRIBS CARDS
ZO 980 FF=0:BB=V(M(10)):CC=V(M(11)):IF BB
   =CC OR BB+CC=15 THEN FF=2
EY 990 IF BB+CC=5 OR BB=5 OR CC=5 THEN FF
   =FF+2
FM 1000 IF BB=CC-1 THEN FF=FF+0.5
GK 1010 IF CR THEN FF=-FF
PY 1020 REM 15'S
XX 1030 BB=N(M(6)):CC=N(M(7)):DD=N(M(8)):
   EE=N(M(9)):IF BB+CC+DD=15 OR BB+CC=15
   THEN CT=CT+2
UD 1040 IF BB+CC+EE=15 OR BB+EE=15 THEN C
   T=CT+2
VS 1050 IF CC+DD+EE=15 OR CC+DD=15 THEN C
   T=CT+2
ZU 1060 IF BB+CC+DD+EE=15 OR BB+DD=15 THE
   N CT=CT+2
KW 1070 IF CC+EE=15 THEN CT=CT+2
LS 1080 IF DD+EE=15 THEN CT=CT+2
QO 1090 REM FLUSH
CH 1100 FOR BB=6 TO 9:IF F(M(BB))=F(M(BB+
   1)) THEN NEXT BB:CT=CT+4
HB 1110 CT=(CT-FF)*2:FOR BB=6 TO 9:IF N(M
   (BB))<6 THEN CT=CT+1:IF N(M(AA))=5 THE
   N CT=CT+2
KW 1120 NEXT BB:IF CT>=SC THEN SC=CT:FOR
   BB=6 TO 11:PT(BB)=M(BB):NEXT BB
RN 1130 NEXT RP:FOR BB=6 TO 11:M(BB)=PT(B
   B):NEXT BB:WO=0:CR(3)=M(10):CR(4)=M(11
   ):RETURN
FT 1140 P$="                    ":POSITION
   1,3:? #6;P$:FOR AA=LL TO HH:BB=3*AA+2:
   SOUND 2,BB*3,10,6
WC 1150 COLOR K(M(AA)):PLOT BB,3:COLOR F(
   M(AA)):PLOT BB+1,3:NEXT AA:SOUND 2,0,0
   ,0:RETURN
DS 1160 CS=-100:FOR AA=4 TO 7:CT=0:BB=TT+
   N(M(AA)):IF BB>31 THEN 1380
VV 1170 IF BB=31 THEN CT=CT+5
WA 1180 IF BB=15 THEN CT=CT+4
TO 1190 IF BB>15 THEN CT=CT+1
NM 1200 IF BB<5 THEN CT=CT+1
PK 1210 IF BB=5 OR BB=21 THEN CT=CT-2
RV 1220 IF BB=10 THEN CT=CT-1
YC 1230 IF V(M(AA))=1 OR (BB>5 AND BB<9)
   THEN CT=CT-1
AX 1240 FOR CC=4 TO 7:IF CC=AA OR N(M(CC)
   )>10 THEN NEXT CC:GOTO 1340
AO 1250 IF V(M(CC))=1 AND BB=30 THEN CT=C
   T+1
JI 1260 IF V(M(CC))=1 AND BB=29 THEN CT=C
   T+1
KD 1270 IF V(M(CC))=2 AND BB=29 THEN CT=C
   T+1
JW 1280 IF V(M(CC))=3 AND BB=28 THEN CT=C
   T+1
HL 1290 IF V(M(CC))=9 AND BB=6 THEN CT=CT
   +3
GV 1300 IF V(M(CC))=8 AND BB=7 THEN CT=CT
   +3
HH 1310 IF V(M(CC))=7 AND BB=8 THEN CT=CT
   +3
HT 1320 IF V(M(CC))=6 AND BB=9 THEN CT=CT
   +3
HO 1330 NEXT CC
IT 1340 IF PL<2 THEN 1370
AY 1350 GOSUB 1590:GOSUB 1640:CT=CT+(ST+P
   R)*1.5
PM 1360 PL=PL-1:II=M(AA):M(AA)=C(PL):FOR
   BB=1 TO PL-1:PT(BB)=PL(BB):NEXT BB:GOS
   UB 1590:M(AA)=II:PL=PL+1
SN 1370 IF CT>=CS THEN CS=CT:CU=AA
EF 1380 NEXT AA:AA=CU:RETURN
HG 1390 NN=10:GOSUB 700:POSITION XX+1,YY:
   AA=INT((XX+2)/3)-1:IF TT+N(M(AA))>31 T
   HEN PL=PL-1:POP :GOTO 450
JF 1400 IF JJ<3 THEN RETURN
AI 1410 FOR AA=1+CR TO JJ-2 STEP 2:IF AA=
   JJ THEN 1390
BT 1420 NEXT AA:RETURN
LC 1430 COLOR K(M(AA)):PLOT CO,RO:COLOR F
   (M(AA)):PLOT CO+1,RO:TT=TT+N(M(AA))
DW 1440 IF TT<32 AND HH-100 THEN POSITION
    9,10:? #6;TT
TS 1450 FOR DC=4 TO 0 STEP -1:FOR SD=200
   TO 190 STEP -1:SOUND 0,SD,10,DC:NEXT S
   D:NEXT DC:RETURN
KQ 1460 GOSUB 1590:PT=ST:IF PT THEN GOSUB
    1560
WV 1470 GOSUB 1640:PT=PR:IF ZZ THEN GOSUB
    1520+(ZZ-1)*10
AL 1480 IF TT=15 THEN PT=2:GOSUB 1520
WK 1490 IF TT=31 THEN PT=2:GOSUB 1510:RC=
   NC
AJ 1500 RETURN
XL 1510 L1$="31 EP ":GOTO 1570
YO 1520 L1$="15 EP ":GOTO 1570
QB 1530 L1$="LMP EP ":GOTO 1570
UH 1540 L1$="3 EP ":GOTO 1570
UV 1550 L1$="4 EP ":GOTO 1570
PZ 1560 L1$="J< EP "
RE 1570 WH=NC:GOSUB 2090:POSITION 5,10:?
   #6;L1$;PT:GOSUB 2060:GOSUB 2070:POSITI
   ON 1,10:? #6;P$
EQ 1580 POSITION 9,10:? #6;TT:RETURN
ZX 1590 ST=0:PL(PL)=V(M(AA)):C(PL)=M(AA):
   IF PL<3 THEN RETURN
OP 1600 FOR BB=1 TO PL-2:ST=1:FOR CC=BB T
   O PL:PT(CC)=PL(CC):NEXT CC
WX 1610 FOR CC=BB TO PL-1:IF PT(CC)>PT(CC
   +1) THEN DD=PT(CC):PT(CC)=PT(CC+1):PT(
   CC+1)=DD:GOTO 1610
KE 1620 NEXT CC:FOR CC=PL-1 TO BB STEP -1
   :IF PT(PL)=PT(CC)+PL-CC THEN ST=ST+1:N
   EXT CC:RETURN
LL 1630 NEXT BB:ST=0:RETURN
RU 1640 ZZ=0:PR=0:IF PL<2 THEN RETURN
ZB 1650 FOR BB=1 TO PL-1:IF V(C(PL))-V(C(
   PL-BB)) THEN RETURN
TL 1660 PR=BB*(BB+1):ZZ=BB+1:NEXT BB:RETU
   RN
AK 1670 DD=3:TT=50:CO=2:FOR AA=LL TO LL+3
   :GOSUB 1430:CO=CO+3:NEXT AA:IF LL=10 T
   HEN DD=4
QX 1680 REM FLUSH
IQ 1690 PT=0:FOR NN=4 TO DD STEP -1:POSIT
   ION 2,10:FOR AA=LL+1 TO LL+NN
TN 1700 IF F(M(LL))=F(M(AA)) THEN NEXT AA
   :PT=NN+1:? #6;"     QTREP ";PT:GOSUB 20
   90:PT=0:GOSUB 1970:GOTO 1730
RJ 1710 NEXT NN
ZP 1720 REM 5 CARD RUN
GR 1730 GG=0:RESTORE 3010:FOR FF=0 TO 4:F
   OR AA=0 TO 4:READ CC:C(AA)=CC:NEXT AA
OX 1740 POSITION 2,9:FOR AA=1 TO 4:IF V(M
   (LL+C(0)))=V(M(LL+C(AA)))-AA THEN NEXT
    AA:PT=5:GOSUB 1980:GOTO 1830
ZO 1750 REM 4 CARD RUN
LD 1760 NEXT FF:GG=0:PT=0:FOR AA=0 TO 16:
   FOR BB=0 TO 3:READ CC:C(BB)=CC:NEXT BB
   :FOR BB=1 TO 3
EB 1770 IF V(M(LL+C(0)))=V(M(LL+C(BB)))-B
   B THEN NEXT BB:PT=4:GOSUB 1980:GG=1
NM 1780 NEXT AA:IF GG THEN 1830
IJ 1790 RESTORE 3040:REM 3 CARD RUN
EA 1800 FOR AA=0 TO 21:FOR BB=0 TO 2:READ
    CC:C(BB)=CC:NEXT BB:FOR BB=1 TO 2
NU 1810 IF V(M(LL+C(0)))=V(M(LL+C(BB)))-B
   B THEN NEXT BB:PT=3:GOSUB 1980
GB 1820 NEXT AA
DB 1830 REM 5 CARD 15
TI 1840 TT=0:FOR AA=LL TO LL+4:TT=TT+N(M(
   AA)):NEXT AA:BB=5:GOSUB 1990:EE=4:REST
   ORE 2980
TK 1850 REM 15 FOR 2
FX 1860 FOR GG=3 TO 1 STEP -1
NW 1870 FOR AA=0 TO EE:FOR BB=0 TO GG:REA
   D CC:C(BB)=CC:NEXT BB:TT=0:FOR BB=0 TO
    GG:TT=TT+N(M(LL+C(BB))):NEXT BB
GF 1880 GOSUB 1990:NEXT AA:EE=9:NEXT GG
QG 1890 REM PAIRS
XT 1900 RESTORE 3000:FOR AA=0 TO 9:FOR BB
```

continued on next page

```
   =0 TO 1:READ CC:C(BB)=CC:NEXT BB
AR 1910 PT=0:IF V(M(LL+C(0)))=V(M(LL+C(1)
   )) THEN PT=2:POSITION 4,10:? #6;"LMP E
   P 2":GOSUB 2090:GOSUB 1970
GD 1920 NEXT AA
MB 1930 REM JACK OF STARTER
PW 1940 PT=1:X=-1:FOR BB=LL TO LL+3:X=X+1
RP 1950 IF V(M(BB))=11 AND S(M(BB))=S(M(4
   )) THEN POSITION 5,10:? #6;"HK EP 1":G
   OSUB 2090:GOSUB 2010:PT=0:GOTO 1970
OY 1960 NEXT BB:PT=0
TJ 1970 GOSUB 2020:POSITION 1,10:? #6;P$:
   RETURN
VT 1980 GOSUB 2090:POSITION 4,10:? #6;"J<
    EP ";PT:GOSUB 1970:RETURN
GW 1990 IF TT=15 THEN PT=2:GOSUB 2090:POS
   ITION 4,10:? #6;"15 EP 2":GOSUB 1970
KA 2000 TT=0:RETURN
QQ 2010 COLOR 130:PLOT X*3+1,RO:GOSUB 206
   0:COLOR 0:PLOT X*3+1,RO:RETURN
FA 2020 REM ARROWS ->
WH 2030 FOR FF=0 TO BB-1:RW=RO:CO=C(FF)*3
   +1:CL=CO:IF CO>10 THEN RO=5:CO=14
VF 2040 HH=0:IF PT THEN HH=130
QT 2050 COLOR HH:PLOT CO,RO:RO=RW:CO=CL:N
   EXT FF:GOSUB 2060:IF HH THEN PT=0:BB=5
   :GOSUB 2060:GOTO 2020
JI 2060 FOR ZZ=0 TO D:POSITION 1,9:? #6;"
   !_PNO>";SC(0)+BD;:POSITION 10,9:? #6;"
   ZH NO>";SC(1)+AD:NEXT ZZ:RETURN
UP 2070 FOR ZZ=0 TO D*3:NEXT ZZ
AY 2080 RETURN
VJ 2090 NW=ABS(WH-1):FOR VV=1 TO PT:SC(WH
   )=SC(WH)+1:GOSUB 2100:COLOR DY:PLOT CL
   ,RW:SOUND 3,0,0,0:NEXT VV:RETURN
KV 2100 IF SC(WH)>SC(NW) THEN 2160
RG 2110 IF SC(WH)<20 THEN CL=SC(WH)-1:RW=
   0:DY=216
NH 2120 IF SC(WH)>19 THEN CL=19:RW=SC(WH)
   -20:DY=221:IF SC(WH)=20 THEN DY=211
SL 2130 IF SC(WH)>30 THEN CL=50-SC(WH):RW
   =11:DY=216:IF SC(WH)=31 THEN DY=171
GZ 2140 IF SC(WH)>49 THEN CL=0:RW=61-SC(W
   H):DY=221:IF SC(WH)=50 THEN DY=213
LD 2150 SOUND 3,9,8+WH*2,10+WH*2:RETURN
EQ 2160 IF SC(WH)>50 THEN CL=0:RW=61-SC(W
   H):DY=217:IF WH THEN DY=218
XM 2170 IF SC(WH)<51 THEN RW=11:CL=50-SC(
   WH):DY=215:IF WH THEN DY=214
JH 2180 IF SC(WH)<32 THEN CL=19:RW=SC(WH)
   -20:DY=218:IF WH THEN DY=217
NQ 2190 IF SC(WH)<21 THEN RW=0:CL=SC(WH)-
   1:DY=214:IF WH THEN DY=215
EY 2200 REM IF SC(WH)=61
BZ 2210 IF SC(WH)-61 THEN SOUND 3,9,8+WH*
   2,10+WH*2:RETURN
VX 2220 W=WH:N=NW:FOR SD=0 TO 16 STEP 0.2
   5:SOUND 0,1,6,SD:NEXT SD
WR 2230 COLOR 0:PLOT 0,0:DRAWTO 19,0:DRAW
   TO 19,11:DRAWTO 0,11:DRAWTO 0,0
OL 2240 IF NW THEN BD=BD+60
KM 2250 IF WH THEN AD=AD+60
FI 2260 IF AD>70 OR BD>70 THEN 2310
TO 2270 SC(WH)=0:QQ=PT-VV+1:PT=SC(NW):WH=
   NW:SC(WH)=0
OJ 2280 IF PT THEN GOSUB 2090
DC 2290 IF QQ THEN PT=QQ:WH=NW:GOTO 2090
ZN 2300 PT=0:WH=W:NW=N:RETURN
WE 2310 GRAPHICS 18:GOSUB 505:FOR AA=0 TO
    3:SETCOLOR AA,5*AA,(AA+4)*2:NEXT AA:I
   F NOT WH THEN 2350
HQ 2320 ? #6;"  GOOD GAME!!!!","YOU DID A
   S WELL AS";"  could be expected.","lik
   e to try again?","    y/n"
GZ 2330 GOSUB 2570:IF LP=89 THEN RUN
QP 2340 GOTO 2330
YL 2350 ? #6;"  WHAT CAN I SAY?","  I BEL
   IEVE I KNOW","  what went wrong.","wha
   t a day i've had! ";
YV 2360 ? #6;"now that i realize","WHO I'
   M UP AGAINST  HOW ABOUT ANOTHER    GAM
   E? Y/N"
IC 2365 GOSUB 2570:IF LP=89 THEN RUN
EW 2370 POSITION 4,5:? #6;"  CHICKEN!!! "
TO 2380 GOTO 2380
RG 2390 FOR AA=LL TO HH
JX 2400 FOR BB=LL TO AA-1:IF V(M(AA))<V(M
   (BB)) THEN CC=M(BB):M(BB)=M(AA):M(AA)=
   CC:GOTO 2400
ZQ 2410 NEXT BB:NEXT AA:H=D:D=0:GOSUB 206
   0:D=H:RETURN
JC 2420 REM KEYBOARD OPTION, TITLE,
        INSTRUCTIONS, CHANGE
        CHARACTER SET,FROM LINE 10
HF 2430 GRAPHICS 18:GOSUB 505:GOSUB 2560:
   AA=PEEK(106)-4:BB=AA*256:RESTORE 2620:
   CR=INT(RND(0)*2)
CM 2440 DIM P$(18),L1$(11),L2$(11),C(14),
   V(14),S(14),K(14),F(14),M(14),N(14),PT
   (14),CR(4),SC(2),PL(8),L3$(11)
DL 2450 DIM L4$(11)
XF 2460 READ DD
ON 2465 IF DD=72 THEN ? #6;"PRESS K FOR K
   EYBOARDpress j for joystick":GOSUB 258
   0:XX=LP:POKE 77,126
IA 2470 IF DD=72 AND XX-74 AND XX-75 THEN
    XX=LP:GOTO 2465
JD 2480 REM
CU 2490 IF DD-280 THEN GOSUB 2560:GOTO 25
   20
GD 2500 FF=PEEK(756)*256:FOR GG=128 TO 20
   0 STEP 8:FOR CC=0 TO 7:EE=PEEK(FF+GG+C
   C):POKE GG+CC+BB,EE:NEXT CC:NEXT GG
DT 2510 POSITION 1,5:? #6;"  PRESS ARROWS
    FOR","    SELECTION,","  INSERT FOR
   CHOICE":SC(0)=0:SC(1)=0
SP 2520 IF XX=74 THEN POSITION 2,5:? #6;"
   MOVE JOYSTICK FOR","    SELECTION"," F
   IRE FOR CHOICE     PLUG INTO #1"
WS 2530 IF DD+1 THEN FOR CC=0 TO 7:READ E
   E:POKE DD+CC+BB,EE:NEXT CC:GOTO 2460
YL 2540 POKE 77,0:RETURN
PB 2550 REM TITLE
VV 2560 POSITION 6,3:? #6;"CRIBBAGE
        ATARI!":GOSUB 505:RETURN
II 2570 REM GET AN ANSWER
QC 2580 POKE 694,0:POKE 702,64:OPEN #1,4,
   12,"K:":GET #1,LP:CLOSE #1:? #6;CHR$(1
   25):RETURN
NM 2590 DATA 6,7,8,9,10,11,6,7,8,10,9,11,
   6,7,8,11,9,10,6,7,9,10,8,11,6,7,9,11,8
   ,10,6,7,10,11,8,9,6,8,9,10,7,11
PL 2600 DATA 6,8,9,11,7,10,6,8,10,11,7,9,
   6,9,10,11,7,8,7,8,9,10,6,11,7,8,9,11,6
   ,10,7,8,10,11,6,9,7,9,10,11,6,8
OZ 2610 DATA 8,9,10,11,6,7
QE 2620 REM CHARACTER SET
TA 2630 DATA 8,0,0,34,20,8,8,8,0,16,0,16,
   8,12,126,12,8,16,24,0,0,99,84,82,81,10
   2,0
MV 2640 DATA 32,0,60,60,60,60,60,60,0,40,
   0,0,27,27,21,17,17,0,48,0,0,55,66,34,1
   8,98,0
FQ 2650 DATA 56,0,0,236,170,202,170,172,0
   ,64,0,0,234,74,78,74,74,0,72,0,0,112,6
   4,96,64,112,0
MT 2660 DATA 80,0,0,66,69,71,69,117,0,88,
   0,102,102,6,6,126,126,0,96,0,0,119,37,
   38,37,119,0
DI 2670 DATA 104,0,0,39,85,70,85,37,0,112
   ,0,0,39,85,118,85,85,0,120,0,0,119,36,
   38,36,39,0
EH 2680 DATA 208,0,0,4,10,8,10,4,0,216,0,
   60,66,66,78,66,61,0,224,0,0,173,173,17
   1,171,233,0
TI 2690 DATA 232,0,0,238,132,196,132,228,
   0,240,0,96,96,0,0,6,6,0,248,0,68,202,7
   4,74,74,228,0
EP 2700 DATA 256,0,28,28,127,119,8,28,0,2
   64,0,8,20,20,62,34,119,0,272,0,14,4,4,
   116,36,60,0
RO 2710 DATA 280,0,0,215,210,178,178,146,
   0,288,0,36,40,48,40,44,36,0,296,0,0,11
   4,69,101,69,66,0
MM 2720 DATA 304,0,0,214,213,181,181,150,
   0,312,0,0,83,84,98,81,86,0,320,0,0,210
   ,213,181,181,146,0,0
BF 2730 DATA 328,0,0,98,133,133,181,98,0
LW 2740 DATA 336,0,0,14,10,12,10,10,0
GJ 2750 DATA 344,0,0,115,84,98,81,118,0
JJ 2760 DATA 352,0,0,14,10,14,8,8,0
OP 2770 DATA 360,0,0,39,82,114,82,87,0
CG 2780 DATA 368,0,0,50,69,36,21,98,0
MU 2790 DATA 376,0,0,39,85,86,85,37,0
GY 2800 DATA 384,0,0,112,80,96,80,80,0
XA 2810 DATA 392,0,0,116,68,100,68,71,0
TL 2820 DATA 400,0,0,80,80,112,80,80,0
ZB 2830 DATA 408,0,126,126,6,6,102,102,0
MM 2840 DATA 416,0,0,83,84,82,81,118,0
JG 2850 DATA 424,0,102,102,96,96,126,126,
   0
DC 2860 DATA 432,0,126,126,0,0,0,0,0
KR 2870 DATA 440,0,0,0,0,0,126,126,0
EO 2880 DATA 448,0,126,126,0,0,126,126,0
XW 2890 DATA 456,0,96,96,96,96,96,96,0
ZW 2900 DATA 464,0,6,6,6,6,6,6,0
FL 2910 DATA 472,0,54,119,127,62,28,8,0
HG 2920 DATA 480,0,24,60,126,126,60,24,0
SH 2930 DATA 488,0,102,102,102,102,102,10
   2,0
```

```
KY 2940 DATA 496,0,24,60,126,126,24,60,0
QI 2950 DATA 504,0,0,74,170,170,170,68,0
FP 2960 DATA -1
BX 2970 DATA 162,0,66,102,152
IA 2980 DATA 0,1,2,3,0,1,2,4,0,1,3,4,0,2,
   3,4,1,2,3,4
KL 2990 DATA 0,1,2,0,1,3,0,1,4,0,2,3,0,2,
   4,0,3,4,1,2,3,1,2,4,1,3,4,2,3,4
JF 3000 DATA 0,1,0,2,0,3,0,4,1,2,1,3,1,4,
   2,3,2,4,3,4
BG 3010 DATA 0,1,2,3,4,0,1,2,4,3,0,1,4,2,
   3,0,4,1,2,3,4,0,1,2,3
ID 3020 DATA 0,1,2,3,0,1,2,4,0,1,4,2,0,4,
   1,2,4,0,1,2,0,1,3,4,0,1,4,3,0,4,1,3,4,
   0,1,3,0,2,3,4,0,2,4,3,0,4,2,3,4,0,2,3
BS 3030 DATA 1,2,3,4,1,2,4,3,1,4,2,3,4,1,
   2,3
LK 3040 DATA 0,1,2,0,1,3,0,1,4,0,4,1,4,0,
   1,0,2,3,0,2,4,0,4,2,4,0,2,0,3,4,0,4,3,
   4,0,3,1,2,3,1,2,4,1,4,2,4,1,2
NP 3050 DATA 1,3,4,1,4,3,4,1,3,2,3,4,2,4,
   3,4,2,3
```

INSTANT CASSETTE TITLE DIRECTORIES

VCR LABELER

Article on page 10

LISTING 1

Don't type the TYPO II Codes!

```
KI 1 REM VCR LABEL  1.0
PY 2 REM BY FRANK WALTERS
PC 3 REM (c)1989, ANTIC PUBLISHING INC.
LL 4 BRK=(PEEK(53279)<>5):GOSUB 31000
MK 5 TYPE=0
KF 10 IF TYPE<1 OR TYPE>6 THEN 4000
HV 20 GOTO 1000
HG 100 ? :? "Title ";Z$;" - don't type ov
   er SPACE":?
SK 110 POKE 752,0:? P$;:INPUT #16;X$
ID 120 L=LEN(X$):IF L<33 THEN X$(L+1,33)=
   BL$(L+1,33)
YW 130 IF X$(17,17)<>" " THEN ? "↑↑↑";DLT
   $;" Do not write in↓→↓↑THIS SPACE↖":?
   :GOTO 110
ZU 140 FOR I=1 TO 33:IF X$(I,I)="_" THEN
   X$(I,I)=" "
ZN 150 NEXT I:POKE 752,1
ZJ 160 RETURN
YR 190 ? "↑→→→→→→→→→→→→→→→→→→→→→→→→→0000←←←←
   ":C=0:GOTO 220
TE 200 POKE 752,0:TRAP 190:? :? "Tape cou
   nter (0-9999) ←←←←←←←←←";:INPUT #16;C:C
   =INT(ABS(C)):X$=""
IE 210 IF C>9999 THEN ? :? "Maximum 4 who
   le digits.↑↑↑↑":GOTO 200
CY 220 TRAP 40000:IF C<1000 THEN X$="0":I
   F C<100 THEN X$="00":IF C<10 THEN X$="
   000"
IV 230 X$(LEN(X$)+1)=STR$(C):POKE 752,1
UJ 240 TRAP 40000:RETURN
MR 300 POKE 752,0:? :? "Program ";Z$;" ti
   me (h mm) ←←←←←←";:INPUT #16;X$
QQ 310 IF LEN(X$)<>4 THEN X$="0:00"
RS 320 IF X$(2,2)=" " THEN X$(2,2)=":"
RK 330 IF X$(2,2)<>":" OR LEN(X$)<>4 THEN
    ? "↑↑";:GOTO 300
CO 340 TRAP 40000:POKE 752,1:RETURN
BZ 400 GOSUB 31000:CLOSE #4:OPEN #4,4,0,"
   K:":GET #4,K:IF (K<32 AND K<>27) OR K>
   124 THEN 400
RC 410 CLOSE #4:? CHR$(K);:RETURN
IE 500 ? #1;WIDE$;LINE1$;WIDEOFF$;C$
PN 510 ? #1;U1$;WIDE$;LINE2$;WIDEOFF$;T$;
   U2$
ZF 520 RETURN
DN 1000 DIM N1$(16),N2$(16),N3$(16),N4$(1
   6),N5$(16),N6$(16)
LG 1005 DIM X$(33),P$(66),C1$(4),C2$(4),C
   3$(4),C$(4),BL$(33),DLT$(19)
YD 1010 DIM T1$(4),T2$(4),T3$(4),T$(4),LI
   NE1$(16),LINE2$(16),WIDE$(6),WIDEOFF$(
   4),BOLD$(4),P66$(4),P88$(4),BOX$(21)
PW 1020 DIM TOP$(36),Z$(1),UON$(4),UOFF$(
   4),U1$(4),U2$(4)
WH 1030 P$="________________ _____________
   ___←←←←←←←←←←←←←←←←←←←←←←←←←←←←←←←←←
   ":BOX$="━━━━━━━━━━━━━━━━━━━━━"
SO 1040 TOP$=" UCR LABEL MAKER  by Frank 
   Walters "
JF 1050 BL$(1)=" ":BL$(33)=BL$:BL$(2)=BL$
   :DLT$(1)="↰":DLT$(19)=DLT$:DLT$(2)=DLT
   $
TO 1060 ON TYPE GOSUB 4100,4200,4300,4400
   ,4500,4600
CP 1070 IF TYPE>4000 THEN 4060
GF 2000 POKE 82,2:GRAPHICS 0:POKE 710,194
   :POKE 709,204:POKE 752,1:? TOP$:GOSUB
   31000
XJ 2010 ? :? "Number of titles on label (
   1-3)> ";
ZW 2020 GOSUB 400:K=K-48
NZ 2030 IF K<1 OR K>3 THEN ? "←";:GOTO 20
   20
NG 2040 TOT=K:?
EB 2100 Z$="1":GOSUB 100
PI 2110 N1$=X$(1,16):N2$=X$(18,33)
IM 2120 GOSUB 200:C1$=X$
QY 2130 GOSUB 300:T1$=X$:? "↖";TOP$:POSIT
   ION 8,2:? "┏";BOX$;"┓":POSITION 8,3
WY 2140 ? "┃";N1$;" ";C1$;"┃":POSITION 8,
   4:? "┃";N2$;" ";T1$;"┃":POSITION 8,5:?
    "┗";BOX$;"┛"
GA 2150 POSITION 8,7:? "┃Is this correct 
   (Y/N)┃";
JI 2160 GOSUB 400:IF K<>110 AND K<>78 AND
    K<>121 AND K<>89 THEN ? "←";:GOTO 216
   0
EI 2170 ? :IF K=78 OR K=110 THEN 2100
CJ 2180 ON TOT GOTO 3000,2200,2200
EN 2200 Z$="2":GOSUB 100
RM 2210 N3$=X$(1,16):N4$=X$(18,33)
JF 2220 GOSUB 200:C2$=X$
RK 2230 GOSUB 300:T2$=X$:POSITION 2,5:? D
   LT$:POSITION 8,5
NJ 2240 ? "┃";N3$;" ";C2$;"┃":POSITION 8,
   6:? "┃";N4$;" ";T2$;"┃":POSITION 8,7:?
    "┗";BOX$;"┛"
HK 2250 POSITION 8,9:? "┃Is this correct 
   (Y/N)┃";
MH 2260 GOSUB 400:IF K<>110 AND K<>78 AND
    K<>121 AND K<>89 THEN ? "←";:GOTO 226
   0
FQ 2270 ? :IF K=78 OR K=110 THEN 2200
ZG 2280 ON TOT-1 GOTO 3000,2300
EZ 2300 Z$="3":GOSUB 100
TQ 2310 N5$=X$(1,16):N6$=X$(18,33)
JY 2320 GOSUB 200:C3$=X$
YX 2330 GOSUB 300:T3$=X$:POSITION 2,7:? D
   LT$:POSITION 8,7
DU 2340 ? "┃";N5$;" ";C3$;"┃":POSITION 8,
   8:? "┃";N6$;" ";T3$;"┃":POSITION 8,9:?
    "┗";BOX$;"┛"
RJ 2350 POSITION 8,11:? "┃Is this correct
    (Y/N)┃";
PG 2360 GOSUB 400:IF K<>110 AND K<>78 AND
    K<>121 AND K<>89 THEN ? "←";:GOTO 236
   0
GY 2370 ? :IF K=78 OR K=110 THEN 2300
OB 2800 GOTO 3000
YN 2900 TRAP 40000:? :? "↑↑↑↑↑";DLT$,"  P
   RINTER ERROR - ";PEEK(195)
JL 3000 ? :? "        ┃[SPACE BAR] to print
     ┃":? "       ┃    [ESC]    to abort ┃"
ZP 3010 GOSUB 400:IF K<>32 AND K<>27 THEN
    ? "←";:GOTO 3010
NI 3020 IF K=27 THEN CLOSE #4:CLOSE #1:RU
   N
RP 3030 POKE 710,66:TRAP 2900:CLOSE #1:OP
   EN #1,8,0,"P:":? #1;BOLD$;
YY 3040 IF TOT=3 THEN ? #1;P88$;:GOTO 306
   0
```

continued on next page

```
EC 3050 ? #1;P66$;
FE 3060 FOR I=1 TO TOT
QH 3070 IF I=1 THEN LINE1$=N1$:LINE2$=N2$
   :C$=C1$:T$=T1$
ZI 3080 IF I=2 THEN LINE1$=N3$:LINE2$=N4$
   :C$=C2$:T$=T2$
IJ 3090 IF I=3 THEN LINE1$=N5$:LINE2$=N6$
   :C$=C3$:T$=T3$
YF 3095 U1$="■":U2$="■":IF TOT=3 AND I<3
   THEN U1$=UON$:U2$=UOFF$
QY 3100 IF TOT=1 THEN ? #1;""
BA 3110 IF TOT=2 AND I=TOT THEN ? #1;""
EU 3120 GOSUB 500:NEXT I:? #1;"":IF TOT=3
    THEN ? #1;""
YC 3130 IF TOT=1 THEN ? #1;"":? #1;""
CO 3140 CLOSE #1:?
NU 3150 ? "■■■";DLT$;:? "          ■<1>Reprin
   t same label■":? "          ■<2>Make new l
   abel■■■■■■■"
HG 3160 ? "          ■<3>Quit■■■■■■■■■■■■■■■■■■"
TH 3170 POKE 752,1:POKE 710,194:? :? "
      ■Select■> ";
EY 3180 GOSUB 400:K=K-48:IF K<1 OR K>3 TH
   EN ? "■";:GOTO 3180
KG 3190 ON K GOTO 3200,2000,3210
IP 3200 ? "■■";DLT$;:GOTO 3030
RP 3210 CLOSE #4:CLOSE #1:POKE 82,2:POKE
   752,0:GRAPHICS 0:END
BZ 4000 POKE 710,66:? "■NO PRINTER SUBROU
   TINE FOR TYPE ■";TYPE
UQ 4010 ? :? "Select your printer type.":
   ? :? "The following types are availabl
   e:"
NO 4020 ?
HX 4021 ? "TYPE=1 OKIDATA 92/192■■"
ZU 4022 ? "TYPE=2 EPSON/STAR NX-10■"
CV 4023 ? "TYPE=3 GEMINI 10X/SG-10■"
ZZ 4024 ? "TYPE=4 PANASONIC 1080■■"
II 4025 ? "TYPE=5 C.ITOH PROWRITER■"
OZ 4026 ? "TYPE=6 Other Printer■■■"
DJ 4030 ? :? "What type of printer do you
   have";:INPUT TYPE:GOTO 10
TA 4050 ? :END
LW 4060 ? "■TYPE ";(TYPE-4000)/100;" Prin
   ter has not been tested.■"
QO 4070 ? "You must delete line ";TYPE+5;
   " before":? "using this printer sub-ro
   utine:"
LZ 4080 IF TYPE>4000 THEN LIST TYPE,TYPE+
   80:? :? :? TYPE+5;"■■";:POKE 710,66
FR 4090 END
RN 4100 REM OKIDATA 92/192
VP 4110 WIDE$="■■":REM 6CPI
GA 4120 WIDEOFF$="■":REM 12CPI
NV 4130 P66$="■6":REM 6 LINES/INCH
RQ 4140 P88$="■8":REM 8 LINES/INCH
SI 4150 BOLD$="■1":REM CQ
GQ 4160 UON$="■C":REM UNDERLINE ON
HP 4170 UOFF$="■D":REM UNDERLINE OFF
BC 4180 RETURN
CS 4200 REM EPSON/STAR NX-10
KW 4210 WIDE$="■M■":REM 6 CPI
RH 4220 WIDEOFF$="■M■":REM 12CPI
LX 4230 P66$="■2":REM 6 LINES/INCH
NS 4240 P88$="■0":REM 8 LINES/INCH
HZ 4250 BOLD$="■G":REM DBL STRIKE
RD 4260 UON$="■-■":REM UNDERLINE ON
SO 4270 UOFF$="■-■":REM UNDERLINE OFF
BE 4280 RETURN
UR 4300 REM GEMINI 10X/STAR SG-10
JY 4310 WIDE$="■B■■W■":REM 6CPI (12CPI-DO
   UBLE WIDTH
EP 4320 WIDEOFF$="■W■":REM 12CPI (DOUBLE
   WIDTH OFF)
QY 4330 GOTO 4230
WF 4400 REM PANASONIC 1080
VA 4405 TYPE=4400:REM DELETE THIS LINE IF
    USING THIS SUB-ROUTINE
WZ 4410 WIDE$="■M■W■":REM 6CPI(12CPI-DOUB
   LE WIDTH ON)
ZY 4420 WIDEOFF$="■W■":REM 12CPI(DOUBLE W
   IDTH OFF)
RA 4430 GOTO 4230
QS 4500 REM C.ITOH PROWRITER
VO 4505 TYPE=4500:REM DELETE THIS LINE IF
    USING THIS SUB-ROUTINE
CB 4510 WIDE$="■E■":REM 6CPI(12CPI-DOUBLE
    WIDTH ON)
AN 4520 WIDEOFF$="■":REM 12CPI(DOUBLE WID
   TH OFF)
TQ 4530 P66$="■A":REM 6 LINES/INCH
WY 4540 P88$="■B":REM 8 LINES/INCH
HE 4550 BOLD$="■!":REM DOUBLE STRIKE
RL 4560 UON$="■X":REM UNDERLINE ON
TF 4570 UOFF$="■Y":REM UNDERLINE OFF
BK 4580 RETURN
AR 4600 REM OTHER PRINTER:ENTER YOUR CODE
   S
WC 4605 TYPE=4600:REM DELETE THIS LINE IF
    USING THIS SUB-ROUTINE
FX 4610 WIDE$="■■■■■■":REM 6CPI(12CPI-DOU
   BLE WIDTH ON)
YF 4620 WIDEOFF$="■■■■":REM 12CPI(DOUBLE
   WIDTH OFF)
LN 4630 P66$="■■■■":REM 6 LINES/INCH
OM 4640 P88$="■■■■":REM 8 LINES/INCH
XL 4650 BOLD$="■■■■":REM DOUBLE STRIKE
CV 4660 UON$="■■■■":REM UNDERLINE ON
EK 4670 UOFF$="■■■■":REM UNDERLINE OFF
BM 4680 RETURN
UN 31000 JNK=USR(ADR("h■■■Mhh■■■■■p■■■■■■
   "),BRK):RETURN
```

LIBRARY OF HIGH-POWERED ROUTINES

ATARI BASIC ENHANCEMENTS

Article on page 16

LISTING 1

Don't type the TYPO II Codes!

```
CA 10 REM BASIC ENHANCEMENTS
KS 20 REM BY PAUL ALHART
ZJ 25 REM (TYPE-IN VERSION BY C. JACKSON)
AD 30 REM (c)1989, ANTIC PUBLISHING INC.
WP 40 DIM Q$(1):Q$=CHR$(34):POKE 710,30:P
   OKE 709,0:POKE 712,66
AG 50 POKE 16,112:POKE 53774,112:? "■■
        BASIC Enhancements":? :? "
      by Paul Alhart":?
AC 55 ? :? "   ( 1) BINLOAD","( 7) ERROR.1
   64"
AW 60 ? :? "   ( 2) DEC/HEX","( 8) LOCK":?
    :? "   ( 3) DELETE","( 9) OPENFILE"
HK 70 ? :? "   ( 4) DIR","(10) RENAME":? :
   ? "   ( 5) DRIVES","(11) UNLOCK"
LW 80 ? :? "   ( 6) ERROR","(12) WRITEDOS"
   :? :? :? ,"Your Choice";:INPUT CHOICE
NI 85 TRAP 50:ON CHOICE GOSUB 100,200,400
   ,500,1500,600,1900,1700,2000,1800,1750
   ,2100
QR 86 POKE 764,255:? :? "  (Press any key
    to continue...)"
DS 88 IF PEEK(764)=255 THEN 88
XE 90 POKE 764,255:GOTO 50
ZP 99 END
WW 100 TRAP 40000:? "Creating BINLOAD":CL
   OSE #1:OPEN #1,8,0,"D:BINLOAD"
BW 110 ? #1;"IF PEEK(5576)<>162 THEN ? ";
   Q$;"■NOT COMPATIBLE with this DOS.";Q$
   ;":STOP"
KS 120 ? #1;"CLOSE #1:CLR :DIM Z$(18):? "
   ;Q$;"■Enter the Binary File to RUN.";Q
   $;":? ";Q$;"    Ex. D2:GAME";Q$
KB 130 ? #1;"? ";Q$;"■■";Q$;":INPUT #16,Z
   $:OPEN #1,4,0,Z$:Z=USR(5576)"
FP 140 CLOSE #1:? "BINLOAD Completed.":?
   :RETURN
EE 200 TRAP 40000:? "Creating DEC":CLOSE
   #1:OPEN #1,8,0,"D:DEC"
OO 210 ? #1;"CLOSE #1:CLR :DN=PEEK(769)"
LD 220 ? #1;"DIM DN$(6),ZZ$(16),Z$(5),Z(4
   ):OPEN #1,4,0,";Q$;"K:";Q$;":? ";Q$;
RV 225 ? #1;"■Enter Decimal Number up to
   65535";Q$
```

```
IX 230 ? #1;"? ";Q$;"⊞⇧";Q$;":DN$=";Q$;"D1:DEC";Q$;":DN$(2,2)=STR$(DN)"
XX 240 ? #1;"? ";Q$;"⊞⇧";Q$;":FOR I=1 TO 4:Z(I)=0:NEXT I:ZZ$=";Q$;"0123456789ABCDEF";Q$
IU 250 ? #1;"? ";Q$;"⊞⇧";Q$;":FOR I=1 TO 5:GET #1,Z";
XA 255 ? #1;":IF Z>47 AND Z<59 THEN ? CHR$(Z);:Z$(I,I)=CHR$(Z):NEXT I:CLOSE #1"
HK 260 ? #1;"? ";Q$;"▣";Q$;":Z=VAL(Z$):FOR I=1 TO 4:Z(I)=0:NEXT I"
EB 270 ? #1;"? ";Q$;"▣";Q$;":ZZ=INT(Z/4096):IF ZZ>0 THEN Z(1)=ZZ:Z=Z-4096*ZZ"
ZI 280 ? #1;"? ";Q$;"▣";Q$;":ZZ=INT(Z/256):IF ZZ>0 THEN Z(2)=ZZ:Z=Z-256*ZZ"
CZ 290 ? #1;"? ";Q$;"▣";Q$;":ZZ=INT(Z/16):IF ZZ>0 THEN Z(3)=ZZ:Z=Z-16*ZZ"
YA 300 ? #1;"? ";Q$;"▣";Q$;":Z(4)=Z"
UR 310 ? #1;"? ";Q$;"⊞⇧DECIMAL ";Q$;";Z$;";Q$;" = ";Q$;";:FOR I=1 TO 4:? ZZ$(Z(I)+1,Z(I)+1);:NEXT I:? ";Q$;
SH 311 ? #1;" HEX";Q$
TR 320 ? #1;"? ";Q$;"⊞⇧⇩Press SPACE BAR to Continue,";Q$;":? ";Q$;"H to Convert HEX Numbers,";Q$;
GK 325 ? #1;":? ";Q$;"Any other Key to Quit.";Q$;":CLOSE #1"
RQ 330 ? #1;"? ";Q$;"⊞⇧";Q$;":OPEN #1,4,0,";Q$;"K:";Q$;":GET #1,Z:CLOSE #1:";
UR 335 ? #1;"IF Z=72 THEN DN$(4)=";Q$;"HEX";Q$;":ENTER DN$"
NC 340 ? #1;"IF Z=32 THEN ENTER DN$"
TI 350 CLOSE #1:? "DEC Completed.":? :GOTO 1300
PK 400 TRAP 40000:? "Creating DELETE":CLOSE #1:OPEN #1,8,0,"D:DELETE"
FM 410 ? #1;"CLOSE #1:CLR :POKE 710,66:DIM Z$(18):? ";Q$;"▣Which File to DELETE?";Q$
OF 420 ? #1;"? ";Q$;"⊞   Ex. D2:DATA.EXE";Q$;":INPUT #16,Z$:? ";Q$;"▣Deleting ";Q$;";Z$:";
CN 425 ? #1;"POKE 710,148:XIO 33,#1,0,0,Z$"
ID 430 CLOSE #1:? "DELETE Completed.":? :RETURN
RA 500 TRAP 40000:? "Creating DIR":CLOSE #1:OPEN #1,8,0,"D:DIR"
IS 510 ? #1;"CLOSE #1:CLR :DIM Z$(18):Z$=";Q$;"D1:*.*";Q$;":? ";Q$;"▣Which Drive?";Q$;":OPEN #1,4,0,";Q$;
BJ 511 ? #1;"K:";Q$;":GET #1,Z:CLOSE #1:IF Z<49 OR Z>56 THEN STOP "
LZ 520 ? #1;"? ";Q$;"▣";Q$;":Z$(2,2)=CHR$(Z):OPEN #1,7,0,Z$:FOR I=1 TO 66:INPUT #1,Z$:? Z$:NEXT I"
AQ 530 CLOSE #1:? "DIR Completed.":? :RETURN
NY 600 TRAP 40000:? "Creating ERROR":CLOSE #1:OPEN #1,8,0,"D:ERROR"
QA 610 ? #1;"CLR:CLOSE #1 :DN=PEEK(769):DIM DN$(8),Z$(42):DN$=";Q$;"D1:ERROR";Q$;":DN$(2,2)=STR$(DN)"
AP 620 ? #1;"? ";Q$;"▣Enter ERROR # ";Q$;";:FOR I=1 TO 5:GET #16,Z:IF Z<155 THEN Z$(I,I)=CHR$(Z):NEXT I"
DJ 630 ? #1;"? ";Q$;"▣";Q$;":Z=VAL(Z$)"
HV 640 ? #1;"? ";Q$;"▣";Q$;":IF Z=1 THEN Z$=";Q$;"No Error";Q$
VA 650 ? #1;"? ";Q$;"▣";Q$;":IF Z=2 THEN Z$=";Q$;"Insufficient Memory";Q$
YE 660 ? #1;"? ";Q$;"▣";Q$;":IF Z=3 THEN Z$=";Q$;"Value Error";Q$
GY 670 ? #1;"? ";Q$;"▣";Q$;":IF Z=4 THEN Z$=";Q$;"Too Many Variables";Q$
DA 680 ? #1;"? ";Q$;"▣";Q$;":IF Z=5 THEN Z$=";Q$;"String Length Error";Q$
ZR 690 ? #1;"? ";Q$;"▣";Q$;":IF Z=6 THEN Z$=";Q$;"Out of Data Error";Q$
IC 700 ? #1;"? ";Q$;"▣";Q$;":IF Z=7 THEN Z$=";Q$;"Number Greater than 32767";Q$
AR 710 ? #1;"? ";Q$;"▣";Q$;":IF Z=8 THEN Z$=";Q$;"Input Statement Error";Q$
CK 720 ? #1;"? ";Q$;"▣";Q$;":IF Z=9 THEN Z$=";Q$;"Array or String DIM Error";Q$
NE 730 ? #1;"? ";Q$;"▣";Q$;":IF Z=10 THEN Z$=";Q$;"Argument Stack Overflow";Q$
GR 740 ? #1;"? ";Q$;"▣";Q$;":IF Z=11 THEN Z$=";Q$;"Floating Point Overflow or Underflow Error";Q$
UH 750 ? #1;"? ";Q$;"▣";Q$;":IF Z=12 THEN Z$=";Q$;"Line Not Found";Q$
UK 760 ? #1;"? ";Q$;"▣";Q$;":IF Z=13 THEN Z$=";Q$;"No Matching FOR Statement";Q$
SY 770 ? #1;"? ";Q$;"▣";Q$;":IF Z=14 THEN Z$=";Q$;"Line Too Long";Q$
QS 780 ? #1;"? ";Q$;"▣";Q$;":IF Z=15 THEN Z$=";Q$;"GOSUB or FOR Line Deleted";Q$
WQ 790 ? #1;"? ";Q$;"▣";Q$;":IF Z=16 THEN Z$=";Q$;"RETURN Error";Q$
YT 800 ? #1;"? ";Q$;"▣";Q$;":IF Z=17 THEN Z$=";Q$;"Garbage Error";Q$
IG 810 ? #1;"? ";Q$;"▣";Q$;":IF Z=18 THEN Z$=";Q$;"Invalid String Character";Q$
RP 820 ? #1;"? ";Q$;"▣";Q$;":IF Z=19 THEN Z$=";Q$;"LOAD Program Too Long";Q$
EA 830 ? #1;"? ";Q$;"▣";Q$;":IF Z=20 THEN Z$=";Q$;"Bad Channel Number";Q$
BP 840 ? #1;"? ";Q$;"▣";Q$;":IF Z=21 THEN Z$=";Q$;"LOAD File Error";Q$
DK 850 ? #1;"? ";Q$;"▣";Q$;":IF Z=128 THEN Z$=";Q$;"BREAK Abort";Q$
QG 860 ? #1;"? ";Q$;"▣";Q$;":IF Z=129 THEN Z$=";Q$;"IOCB Already Opened";Q$
MK 870 ? #1;"? ";Q$;"▣";Q$;":IF Z=130 THEN Z$=";Q$;"Nonexistent Device";Q$
QW 880 ? #1;"? ";Q$;"▣";Q$;":IF Z=131 THEN Z$=";Q$;"IOCB Opened for WRITE Only";Q$
TI 890 ? #1;"? ";Q$;"▣";Q$;":IF Z=132 THEN Z$=";Q$;"Invalid Command";Q$
XL 900 ? #1;"? ";Q$;"▣";Q$;":IF Z=133 THEN Z$=";Q$;"Device or File Not Open";Q$
MF 910 ? #1;"? ";Q$;"▣";Q$;":IF Z=134 THEN Z$=";Q$;"Bad IOCB Number";Q$
MY 920 ? #1;"? ";Q$;"▣";Q$;":IF Z=135 THEN Z$=";Q$;"IOCB Opened for READ Only";Q$
HK 930 ? #1;"? ";Q$;"▣";Q$;":IF Z=136 THEN Z$=";Q$;"EOF (End of File)";Q$
ED 940 ? #1;"? ";Q$;"▣";Q$;":IF Z=137 THEN Z$=";Q$;"Truncated Record";Q$
MU 950 ? #1;"? ";Q$;"▣";Q$;":IF Z=138 THEN Z$=";Q$;"Device Timeout";Q$
WT 960 ? #1;"? ";Q$;"▣";Q$;":IF Z=139 THEN Z$=";Q$;"Device NAK";Q$
EH 970 ? #1;"? ";Q$;"▣";Q$;":IF Z=140 THEN Z$=";Q$;"Serial Bus Framing Error";Q$
MC 980 ? #1;"? ";Q$;"▣";Q$;":IF Z=141 THEN Z$=";Q$;"Cursor Out of Range";Q$
NB 990 ? #1;"? ";Q$;"▣";Q$;":IF Z=142 THEN Z$=";Q$;"Serial Bus Overrun";Q$
MK 1000 ? #1;"? ";Q$;"▣";Q$;":IF Z=143 THEN Z$=";Q$;"Serial Bus Checksum Error";Q$
AT 1010 ? #1;"? ";Q$;"▣";Q$;":IF Z=144 THEN Z$=";Q$;"Device Done Error";Q$
WJ 1020 ? #1;"? ";Q$;"▣";Q$;":IF Z=145 THEN Z$=";Q$;"Read After Write Compare Error";Q$
QQ 1030 ? #1;"? ";Q$;"▣";Q$;":IF Z=146 THEN Z$=";Q$;"Function Not Implemented";Q$
FK 1040 ? #1;"? ";Q$;"▣";Q$;":IF Z=147 THEN Z$=";Q$;"Insufficient RAM";Q$
IS 1041 ? #1;"? ";Q$;"▣";Q$;":IF Z=150 THEN Z$=";Q$;"Serial Port Already Open";Q$
OF 1042 ? #1;"? ";Q$;"▣";Q$;":IF Z=151 THEN Z$=";Q$;"Concurrent Mode Not Enabled";Q$
PI 1043 ? #1;"? ";Q$;"▣";Q$;":IF Z=152 THEN Z$=";Q$;"Illegal User-Supplied Buffer";Q$
EJ 1044 ? #1;"? ";Q$;"▣";Q$;":IF Z=153 THEN Z$=";Q$;"Active Concurrent Mode Error";Q$
JF 1045 ? #1;"? ";Q$;"▣";Q$;":IF Z=154 THEN Z$=";Q$;"Concurrent Mode Not Active";Q$
CW 1050 ? #1;"? ";Q$;"▣";Q$;":IF Z=160 THEN Z$=";Q$;"Device Number Error";Q$
QK 1060 ? #1;"? ";Q$;"▣";Q$;":IF Z=161 THEN Z$=";Q$;"Too Many OPEN Files";Q$
ZP 1070 ? #1;"? ";Q$;"▣";Q$;":IF Z=162 THEN Z$=";Q$;"Disk Full";Q$
AT 1080 ? #1;"? ";Q$;"▣";Q$;":IF Z=163 THEN Z$=";Q$;"Fatal System Error";Q$
RM 1090 ? #1;"? ";Q$;"▣";Q$;":IF Z=164 THEN Z$=";Q$;"File Number Mismatch";Q$
ND 1100 ? #1;"? ";Q$;"▣";Q$;":IF Z=165 THEN Z$=";Q$;"Bad File Name";Q$
NP 1110 ? #1;"? ";Q$;"▣";Q$;":IF Z=166 THEN Z$=";Q$;"POINT Data Length Error";Q$
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continued on next page

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CH 1120 ? #1;"? ";Q$;"■";Q$;":IF Z=167 THEN Z$=";Q$;"File Locked";Q$
HC 1130 ? #1;"? ";Q$;"■";Q$;":IF Z=168 THEN Z$=";Q$;"Invalid XIO Command";Q$
XU 1140 ? #1;"? ";Q$;"■";Q$;":IF Z=169 THEN Z$=";Q$;"Directory Full";Q$
MT 1150 ? #1;"? ";Q$;"■";Q$;":IF Z=170 THEN Z$=";Q$;"File Not Found";Q$
GH 1160 ? #1;"? ";Q$;"■";Q$;":IF Z=171 THEN Z$=";Q$;"POINT Invalid";Q$
VN 1170 ? #1;"? ";Q$;"■";Q$;":IF Z=172 THEN Z$=";Q$;"DOS 1 File";Q$
TE 1180 ? #1;"? ";Q$;"■";Q$;":IF Z=173 THEN Z$=";Q$;"Bad Sector";Q$
DT 1190 ? #1;"? ";Q$;"■";Q$;":IF Z=255 THEN Z$=";Q$;"FORMATTING Error (DOS 2.5)";Q$
RS 1200 ? #1;"? ";Q$;"■ERROR ";Q$;";Z;";Q$;" = ";Q$;";Z$:? ";Q$;"■■■■■";Q$
KG 1210 ? #1;"? ";Q$;"■■Press SPACE BAR to Continue.";Q$;":? ";Q$;"Any Other KEY to QUIT.";Q$
FE 1220 ? #1;"OPEN #1,4,0,";Q$;"K:";Q$;":? ";Q$;"■■";Q$;":GET #1,Z:CLOSE #1:IF Z=32 THEN ENTER DN$"
TV 1230 CLOSE #1:? "ERROR Completed.":? :RETURN
NH 1300 ? "Creating HEX":CLOSE #1:OPEN #1,8,0,"D:HEX"
JE 1310 ? #1;"CLOSE #1:CLR :DN= PEEK(769):DIM DN$(6),Z$(4),ZZ$(4):? ";Q$;
QI 1315 ? #1;"■Enter HEX Number to Convert.";Q$;":OPEN #1,4,0,";Q$;"K:";Q$
MX 1320 ? #1;"? ";Q$;"■■";Q$;":DN$=";Q$;"D1:HEX";Q$;":DN$(2,2)=STR$(DN)"
SP 1330 ? #1;"? ";Q$;"■■";Q$;
SD 1335 ? #1;":FOR I=1 TO 4:GET #1,Z:IF Z>47 AND Z<58 OR Z>64 AND Z<71 THEN Z$(I,I)=CHR$(Z):? CHR$(Z);:NEXT I"
NX 1340 ? #1;"? ";Q$;"■";Q$;":CLOSE #1:ZZ$=";Q$;"0000";Q$;":Z=LEN(Z$)"
QQ 1350 ? #1;"? ";Q$;"■";Q$;":ZZ$(1+4-Z)=Z$:Z$=ZZ$(1,1):Z=0:ZZ=0"
RS 1360 ? #1;"? ";Q$;"■";Q$;":Z=Z$=";Q$;"F";Q$;"*15+Z$=";Q$;"E";Q$;"*14+Z$=";Q$;"D";Q$;"*13+Z$=";
HY 1361 ? #1;Q$;"C";Q$;
RE 1365 ? #1;"*12+Z$=";Q$;"B";Q$;"*11+Z$=";Q$;"A";Q$;"*10+Z$=";Q$;"9";Q$;"*9+Z$=";Q$;"8";Q$;"*8"
WS 1370 ? #1;"? ";Q$;"■";Q$;":Z=Z+Z$=";Q$;"7";Q$;"*7+Z$=";Q$;"6";Q$;"*6+Z$=";Q$;
EL 1372 ? #1;"5";Q$;"*5+Z$=";Q$;"4";Q$;"*4+Z$=";Q$;"3";Q$;"*3+Z$=";Q$;"2";Q$;"*2+Z$=";Q$;"1";
YD 1373 ? #1;Q$;
XP 1374 ? #1;":Z=Z*4096:ZZ=ZZ+Z:Z$=ZZ$(2,2)"
WU 1380 ? #1;"? ";Q$;"■";Q$;":Z=Z$=";Q$;"F";Q$;"*15+Z$=";Q$;"E";Q$;"*14+Z$=";Q$;"D";
FV 1381 ? #1;Q$;"*13+Z$=";Q$;
CC 1385 ? #1;"C";Q$;"*12+Z$=";Q$;"B";Q$;"*11+Z$=";Q$;"A";Q$;"*10+Z$=";Q$;"9";Q$;"*9+Z$=";
QN 1386 ? #1;Q$;"8";Q$;"*8"
RK 1390 ? #1;"? ";Q$;"■";Q$;":Z=Z+Z$=";Q$;"7";Q$;"*7+Z$=";Q$;"6";Q$;"*6+Z$=";Q$;"5";Q$;
FM 1391 ? #1;"*5+Z$=";Q$;"4";Q$;
BC 1395 ? #1;"*4+Z$=";Q$;"3";Q$;"*3+Z$=";Q$;"2";Q$;"*2+Z$=";Q$;"1";Q$;":Z=Z*256:ZZ=ZZ+Z:Z$=ZZ$(3,3)"
KY 1400 ? #1;"? ";Q$;"■";Q$;":Z=Z$=";Q$;"F";Q$;"*15+Z$=";Q$;"E";Q$;"*14+Z$=";Q$;"D";Q$;
ZG 1401 ? #1;"*13+Z$=";Q$;"C";Q$;
QO 1405 ? #1;"*12+Z$=";Q$;"B";Q$;"*11+Z$=";Q$;"A";Q$;"*10+Z$=";Q$;"9";Q$;"*9+Z$=";Q$;"8";Q$;"*8"
QO 1410 ? #1;"? ";Q$;"■";Q$;":Z=Z+Z$=";Q$;"7";Q$;"*7+Z$=";Q$;"6";Q$;"*6+Z$=";Q$;"5";Q$;
EQ 1411 ? #1;"*5+Z$=";Q$;"4";Q$;
GH 1415 ? #1;"*4+Z$=";Q$;"3";Q$;"*3+Z$=";Q$;"2";Q$;"*2+Z$=";Q$;"1";Q$;":Z=Z*16:ZZ=ZZ+Z:Z$=ZZ$(4,4)"
LE 1420 ? #1;"? ";Q$;"■";Q$;":Z=Z$=";Q$;"F";Q$;"*15+Z$=";Q$;"E";Q$;"*14+Z$=";Q$;"D";Q$;
ZM 1421 ? #1;"*13+Z$=";Q$;"C";Q$;
QU 1425 ? #1;"*12+Z$=";Q$;"B";Q$;"*11+Z$=";Q$;"A";Q$;"*10+Z$=";Q$;"9";Q$;"*9+Z$=";Q$;"8";Q$;"*8"
QU 1430 ? #1;"? ";Q$;"■";Q$;":Z=Z+Z$=";Q$;"7";Q$;"*7+Z$=";Q$;"6";Q$;"*6+Z$=";Q$;"5";Q$;
EW 1431 ? #1;"*5+Z$=";Q$;"4";Q$;
AK 1435 ? #1;"*4+Z$=";Q$;"3";Q$;"*3+Z$=";Q$;"2";Q$;"*2+Z$=";Q$;"1";Q$;":ZZ=ZZ+Z"
KR 1440 ? #1;"? ";Q$;"■■HEX ";Q$;";ZZ$;";Q$;" = ";Q$;";ZZ;";Q$;" DECIMAL";Q$
BI 1450 ? #1;"? ";Q$;"■■■Press SPACE BAR to continue,";Q$;":? ";Q$;
TQ 1455 ? #1;"D to Convert DECIMAL Numbers,";Q$;":? ";Q$;"Any Other Key to Quit.";Q$
BG 1460 ? #1;"? ";Q$;"■■";Q$;":OPEN #1,4,0,";Q$;"K:";Q$;":GET #1,Z:CLOSE #1:IF Z=32 THEN ENTER DN$"
FB 1470 ? #1;"IF Z=68 THEN DN$(4)=";Q$;"DEC";Q$;":ENTER DN$"
LQ 1480 CLOSE #1:? "HEX Completed.":? :RETURN
MQ 1500 TRAP 40000:? "Creating DRIVES":CLOSE #1:OPEN #1,8,0,"D:DRIVES"
JI 1510 ? #1;"IF PEEK(1801)>16 OR PEEK(1801)=0 THEN ? ";Q$;"■NOT COMPATIBLE with this DOS.";Q$;":STOP "
OR 1520 ? #1;"CLOSE #1:CLR :DIM Z$(11),Z(8):Z$=";Q$;"NOT Enabled";Q$
KT 1530 ? #1;"FOR Z=1 TO 8:Z(Z)=1:NEXT Z:Z=PEEK(1802)"
CV 1540 ? #1;"? ";Q$;"■";Q$;":IF Z>=128 THEN Z(8)=4:Z=Z-128"
NV 1550 ? #1;"? ";Q$;"■";Q$;":IF Z>=64 THEN Z(7)=4:Z=Z-64"
VJ 1560 ? #1;"? ";Q$;"■";Q$;":IF Z>=32 THEN Z(6)=4:Z=Z-32"
AU 1570 ? #1;"? ";Q$;"■";Q$;":IF Z>=16 THEN Z(5)=4:Z=Z-16"
AT 1580 ? #1;"? ";Q$;"■";Q$;":IF Z>=8 THEN Z(4)=4:Z=Z-8"
LZ 1590 ? #1;"? ";Q$;"■";Q$;":IF Z>=4 THEN Z(3)=4:Z=Z-4"
CT 1600 ? #1;"? ";Q$;"■";Q$;":IF Z>=2 THEN Z(2)=4:Z=Z-2"
YT 1610 ? #1;"? ";Q$;"■";Q$;":IF Z>=1 THEN Z(1)=4"
ZE 1620 ? #1;"? ";Q$;"■";Q$;":FOR Z=1 TO 8:? ";Q$;"Drive ";Q$;";Z;";Q$;" is ";Q$;";Z$(Z(Z)):NEXT Z"
BA 1630 ? #1;"? ";Q$;"■Would you like to change this set up?";Q$;":OPEN #1,4,0,";Q$;"K:";Q$;":GET #1,Z:";
OI 1635 ? #1;"CLOSE #1:IF Z<>89 THEN STOP"
ZG 1640 ? #1;"? ";Q$;"■Press Numbers of Drives to Enable.";Q$;":FOR Z=1 TO 8:Z(Z)=0:NEXT Z"
RW 1650 ? #1;"?";Q$;"■■";Q$;":FOR I=1 TO 4:OPEN #1,4,0,";Q$;"K:";Q$;":GET#1,Z:CLOSE #1:";
DG 1655 ? #1;"IF Z<57 AND Z>48 THEN Z(Z-48)=1:? ";Q$;"DRIVE ";Q$;";Z-48;Z$(4):NEXT I"
CN 1660 ? #1;"Z=1:FOR I=1 TO 8:Z(I)=Z(I)*Z:Z=Z*2:NEXT I:Z=0:FOR I=1 TO 8:Z=Z+Z(I):NEXT I:IF Z>0";
IE 1665 ? #1;" THEN POKE 1802,Z"
GS 1670 ? #1;"Z=USR(58484)"
RQ 1680 CLOSE #1:? "DRIVES Completed.":?:RETURN
CA 1700 TRAP 40000:? "Creating LOCK":CLOSE #1:OPEN #1,8,0,"D:LOCK"
NJ 1710 ? #1;"CLOSE #1:CLR :DIM Z$(18):? ";Q$;"■Which File to LOCK?";Q$
OT 1720 ? #1;"? ";Q$;"■   Ex. D2:DATA.EXE";Q$;":INPUT #16,Z$:? ";Q$;"Locking ";Q$;";Z$:XIO 35,#1,0,0,Z$"
CG 1730 CLOSE #1:? "LOCK Completed.":? :RETURN
ET 1750 TRAP 40000:? "Creating UNLOCK":CLOSE #1:OPEN #1,8,0,"D:UNLOCK"
UY 1760 ? #1;"CLOSE #1:CLR :DIM Z$(18):? ";Q$;"■Which File to UNLOCK?";Q$
YH 1770 ? #1;"? ";Q$;"■   Ex. D2:DATA.EXE";Q$;":INPUT #16,Z$:? ";Q$;"Unlocking ";Q$;";Z$:XIO 36,#1,0,0,Z$"
OL 1780 CLOSE #1:? "UNLOCK Completed.":?:RETURN
KE 1800 TRAP 40000:? "Creating RENAME":CLOSE #1:OPEN #1,8,0,"D:RENAME"
YW 1810 ? #1;"CLOSE #1:CLR :DIM Z$(18):? ";Q$;"■Which File to RENAME?";Q$
EA 1820 ? #1;"? ";Q$;"■   Ex. D2:OLDNAME,NEWNAME";Q$;":INPUT #16,Z$:XIO 32,#1,0,0,Z$"
```

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YR 1830 CLOSE #1:? "RENAME Completed.":?
   :RETURN
OT 1900 TRAP 40000:? "Creating ERROR.164"
   :CLOSE #1:OPEN #1,8,0,"D:ERROR.164"
WU 1910 ? #1;"IF PEEK(4149)<>44 AND PEEK(
   4149)<>234 THEN ? ";Q$;"◘NOT COMPATIBL
   E with this DOS.";Q$;":STOP "
XK 1920 ? #1;"CLOSE #1:CLR :? ";Q$;"◘Pres
   s X to Disable ERROR 164.";Q$;":? ";Q$
   ;"This will allow Loading ";
SM 1930 ? #1;"files that    cause an ERRO
   R 164.";Q$
OM 1940 ? #1;"? ";Q$;"↑↑↓Be aware that th
   e DATA will probably  not be 100% inta
   ct.";Q$
YP 1950 ? #1;"? ";Q$;"↑↑↓↓Press any other
    Key to Enable Normal  ERROR 164 handl
   ing.";Q$;
LM 1960 ? #1;":OPEN #1,4,0,";Q$;"K:";Q$;"
   :GET #1,Z:CLOSE #1"
ZG 1970 ? #1;"POKE 4148,208:POKE 4149,44:
   IF Z=88 THEN POKE 4148,234:POKE 4149,2
   34"
IQ 1980 CLOSE #1:? "ERROR.164 Completed."
   :? :RETURN
ZV 2000 TRAP 40000:? "Creating OPENFILE":
   CLOSE #1:OPEN #1,8,0,"D:OPENFILE"
IZ 2010 ? #1;"IF PEEK(1801)>16 OR PEEK(18
   01)=0 THEN ? ";Q$;"◘NOT COMPATIBLE wit
   h this DOS.";Q$;":STOP "
JP 2020 ? #1;"CLOSE #1:CLR :Z=PEEK(1801):
   ? ";Q$;"◘";Q$;";Z;";Q$;" Buffers are s
   et up by this DOS.";Q$
YQ 2030 ? #1;"? ";Q$;"↑";Q$;";Z;";Q$;" Si
   ngle Density or ";Q$;";INT(Z/2);";Q$;
VX 2035 ? #1;" Double Density  Files may
   be opened at the same time.";Q$
NJ 2040 ? #1;"? ";Q$;"↑Would you like to
   change this?";Q$;":OPEN #1,4,0,";Q$;"K
   :";Q$;
PQ 2045 ? #1;":GET #1,Z:CLOSE #1:IF Z<>89
    THEN STOP "
TO 2050 ? #1;"? ";Q$;"◘How many Buffers w
   ould you like DOS   to set up?";Q$;
QX 2055 ? #1;":OPEN #1,4,0,";Q$;"K:";Q$;"
   :GET #1,Z:CLOSE #1:IF Z<49 OR Z>57 THE
   N STOP "
YH 2060 ? #1;"POKE 1801,Z-48:Z=USR(58484)
   "
PD 2070 CLOSE #1:? "OPENFILE Completed.":
   ? :RETURN
OL 2100 TRAP 40000:? "Creating WRITEDOS":
   CLOSE #1:OPEN #1,8,0,"D:WRITEDOS"
SC 2105 ? #1;"CLOSE #1:CLR :DIM Z$(10):Z$
   =";Q$;"D1:DOS.SYS";Q$
DW 2110 ? #1;"? ";Q$;"◘Write DOS.SYS to w
   hich drive?";Q$;":OPEN #1,4,0,";Q$;"K:
   ";Q$;
MY 2115 ? #1;":GET #1,Z:CLOSE #1:IF Z<49
   OR Z>56 THEN STOP "
AH 2120 ? #1;"? ";Q$;"↑↑Put Disk in Drive
    ";Q$;";Z-48;";Q$;" and Press RETURN."
   ;Q$;
ZT 2125 ? #1;":Z$(2,2)=STR$(Z-48):OPEN #1
   ,4,0,";Q$;"K:";Q$;":GET #1,Z:CLOSE #1"
AL 2130 ? #1;"? ";Q$;"↑↑Writing DOS.SYS t
   o Drive ";Q$;";Z$(2,2);";Q$;".   ";Q$;
   ":OPEN #1,8,0,Z$:CLOSE #1"
OT 2140 CLOSE #1:? "WRITEDOS Completed.":
   ? :RETURN
```

NO MORE "OOPS, I HIT [CLEAR]" BLUES

BUTTERFINGERS

Article on page 24

LISTING 1

Don't type the TYPO II Codes!

```
ZT 10 REM BUTTERFINGERS
TM 20 REM BY KEVIN C. GEVATOSKY
GX 30 REM (c) 1985,1989 ANTIC PUBLISHING
EV 40 REM (LINES 10-250 MAY BE USED WITH
   OTHER BASIC LOADERS IN THIS ISSUE.
IJ 50 REM CHANGE LINE 70 AS NECESSARY.)
PR 60 DIM FN$(20),TEMP$(20),AR$(93):DPL=P
   EEK(10592):POKE 10592,255
ZL 70 FN$="D:FINGERS.EXE":REM THIS IS THE
    NAME OF THE DISK FILE TO BE CREATED
RD 80 ? "◘Disk or Cassette?";:POKE 764,25
   5
PY 90 IF  NOT (PEEK(764)=18 OR PEEK(764)=
   58) THEN 90
TH 100 IF PEEK(764)=18 THEN FN$="C:"
VB 110 POKE 764,255:GRAPHICS 0:?  "     AN
   TIC'S GENERIC BASIC LOADER"
MY 120 ? ,"BY CHARLES JACKSON"
KB 130 POKE 10592,DPL:TRAP 200
PU 140 ? :? :? "Creating ";FN$:? "...plea
   se stand by."
LW 150 RESTORE :READ LN:LM=LN:DIM A$(LN):
   C=1
BQ 160 AR$="":READ AR$
YC 170 FOR X=1 TO LEN(AR$) STEP 3:POKE 75
   2,255
DM 180 LM=LM-1:POSITION 10,10:? "(Countdo
   wn...T-";INT(LM/10);")   "
BK 190 A$(C,C)=CHR$(VAL(AR$(X,X+2))):C=C+
   1:NEXT X:GOTO 160
MM 200 IF PEEK(195)=5 THEN ? :? :? "◘TOO
   MANY DATA LINES!":? "CANNOT CREATE FIL
   E!":END
CM 210 IF C<LN+1 THEN ? :? "◘TOO FEW DATA
    LINES!":? "CANNOT CREATE FILE!":END
UQ 220 IF FN$="C:" THEN ? :? " Prepare ca
   ssette, press [RETURN]"
AR 230 OPEN #1,8,0,FN$
PV 240 POKE 766,1:? #1;A$;:POKE 766,0
AL 250 CLOSE #1:GRAPHICS 0:? " COMPLETED 
   "
LO 1000 DATA 96
SL 1010 DATA 25525500000060830060760050062
   34104165012141026006165013141027006169
   025133012169006133013208003
FJ 1020 DATA 0322552551201730080021410840
   06173009002141085006169053141008002169
   006141009002088096072173009
DF 1030 DATA 2102011182400162011822400122
   01246208011169118141252002141242002104
   104064104108084006224002225
JP 1040 DATA 002000006
```

LISTING 2

```
0100 ;BUTTERFINGERS
0110 ;BY KEVIN C. GEVATOSKY
0120 ;(c)1989, ANTIC PUBLISHING INC.
0130 ;
0140 DOSINI = $0C
0150 VKEYBD = $0208   ;KB int. vector.
0160 KBCODE = $D209   ;Current key.
0170 CH1 =    $02F2   ;Prior key.
0180 CH  =    $02FC   ;Last key.
0190 SH_CLR = 118     ;Key codes.
0200 CT_CLR = 182
0210 CT_SH_CLR = 246
0220 ;
0230     *=  $0600
0240 ;
0250 ;This program provides two entry
0260 ;points so that it can be
0270 ;started from DOS or BASIC.
0280 ;
0290 START
0300     JMP INIT         ;For DOS entry.
0310     NOP              ;For BASIC entry
0320     PLA              ;w/ X=USR(1540)
0330 ;
0340 ;Makes the program RESET-proof
0350 ;
```

continued on next page

```
0360 INIT
0370      LDA DOSINI   ;Get current DOS
0380      STA NEW_INI+1 ;init address
0390      LDA DOSINI+1 ;and save in
0400      STA NEW_INI+2 ;new vector.
0410      LDA # <NEW_INI ;Put addr of
0420      STA DOSINI   ;new vector in
0430      LDA # >NEW_INI ;old vector.
0440      STA DOSINI+1
0450      BNE SET_KBVEC ;(JUMP)
0460 ;
0470 NEW_INI
0480      JSR $FFFF    ;New DOS init.
0490 ;
0500 ;Jump here on initialization or
0510 ;RESET to setup a new keyboard
0520 ;trap vector.
0530 ;
0540 SET_KBVEC
0550      SEI           ;Kill IRQ's.
0560      LDA VKEYBD   ;Save system KB
0570      STA SYSKBV   ;interrupt addr
0580      LDA VKEYBD+1 ;replace w/the
0590      STA SYSKBV+1 ;addr to our
0600      LDA # <KEY_TRAP ;key-trap
0610      STA VKEYBD   ;routine.
0620      LDA # >KEY_TRAP
0630      STA VKEYBD+1
0640      CLI           ;Restore IRQ's.
0650      RTS
0660 ;
0670 ;Interrupt routine to replace
0680 ;SHFT+CLEAR and CTRL+CLEAR
0690 ;with SHFT+CTRL+CLEAR.
0700 ;
0710 KEY_TRAP
0720      PHA
0730      LDA KBCODE   ;Get current key
0740      CMP #SH_CLR ;Filter out the
0750      BEQ GOT_YA   ;standard clear
0760 ;
0770      CMP #CT_CLR ;screen keys.
0780      BEQ GOT_YA
0790 ;
0800      CMP #CT_SH_CLR ; Check for
0810      BNE GO_KB_INT ;  our special
0820 ;                     key
0830 CLR_SCR ;         combination
0840      LDA #SH_CLR
0850      STA CH         ;Put clr-screen
0860      STA CH1        ;code for Editor
0870 GOT_YA
0880      PLA            ;Return from the
0890      PLA            ;interrupt.
0900      RTI
0910 ;
0920 GO_KB_INT
0930      PLA            ;Pass all other
0940      JMP (SYSKBV) ;keys on to OS
0950 ;
0960 SYSKBV
0970      .DS 2          ;keybd handler.
0980      *=  $02E0     ;DOS RUN address
0990      .WORD START
1000      .END
```

SHOGUN DEATH MAZE OF OLD JAPAN

SECRET OF KYOBU DI

Article on page 12

LISTING 1

Don't type the TYPO II Codes!

```
EU 2 REM THE SECRET OF KYOBU DI
AJ 4 REM BY BERNARD TAYLOR
PF 6 REM (c)1989, ANTIC PUBLISHING INC.
JF 10 GOSUB 1000:GOSUB 4500:GOSUB 6020
QL 12 POKE 559,R:POSITION R,R:? #6;A$(S,4
   60):POSITION R,23:? #6;"■":POKE 559,34
   :POKE 19,R:TT=3:X=7:Y=21:XB=X:YB=Y
SG 14 GOSUB 514
PY 20 A=STICK(0):IF  NOT (STRIG(0)+TW) TH
   EN GOSUB 80
PC 21 IF TW OR LR THEN ARW=ARW+S:IF ARW>T
   M THEN GOSUB 300
HQ 22 IF PEEK(53279)=6 THEN 738
DV 25 NX=(A=7)-(A=11):NY=(A=13)-(A=14):IF
     NOT (NX+NY) THEN 45
VR 28 FOR DE=12 TO R STEP -1.5:SOUND R,20
   0,4,DE:NEXT DE:X=X+NX:Y=Y+NY
HB 35 U=(X<R OR X>19)+2*(Y<R OR Y>22):ON
   U GOSUB 600,605:POKE 559,34
CJ 42 LOCATE X,Y,Z:IF Z<>32 THEN GOSUB 90
GA 45 F1=F1+S:IF F1>F2 THEN F1=F3
LR 46 U=USR(SL,ST+112,SL1+F1*8):U=USR(SL,
   ST+24,SL4+F1*8)
FS 47 COLOR 32:PLOT XB,YB:COLOR TC:PLOT X
   ,Y:XB=X:YB=Y
KN 60 T=TT-PEEK(19):IF T>-S THEN POSITION
    S,23:? #6;T;" "
EU 70 IF T<S AND OIL=R THEN GOSUB 110
SH 75 GOTO 20
EN 80 POSITION S,23:? #6;"0 ":TT=R:LR=R:I
   F RBY THEN RETURN
LD 82 POKE 710,R:RETURN
GQ 90 U=(Z=44)+2*(Z=45)+3*(Z=47)+4*(Z=170
    OR Z=42)+5*(Z=171)+6*(Z=123)
WM 92 ON U GOTO 120,130,140,150,160,170
WX 94 U=(Z=90 OR Z=122 OR Z=250)+2*(Z=1 O
   R Z=33 OR Z=129)+3*(Z=163)+4*(Z=221)
CM 96 ON U GOTO 180,210,200,205
GN 110 F1=R:F2=2:F3=R:OIL=S
MA 112 IF RBY THEN RETURN
JW 114 POKE 710,R:L=1242
RI 115 FOR J=S TO 3:A$(L,L+7)="□/□/□/□":L
   =L+40:NEXT J:L=1240:GOTO 6015
KG 120 IF A=14 THEN Y=Y+NY:GOTO 142
GE 130 IF A=13 AND Z=45 THEN Y=Y+NY:GOTO
   142
BX 140 FOR DE=16 TO R STEP -2:SOUND R,40+
   DE,12,DE:NEXT DE:X=X-NX:Y=Y-NY:RETURN
MN 142 FOR J=240 TO 180 STEP -60:SOUND R,
   J,10,12:FOR DE=S TO 20:NEXT DE:NEXT J:
   SOUND R,R,R,R:RETURN
WW 150 X=X+NX:IF SCN=18 THEN 142
ZY 151 IF  NOT TW THEN TCC=TC:TC=142
GJ 152 FOR DE=15 TO R STEP -0.5:SOUND R,6
   0-DE,10,DE:NEXT DE:TW=TW+S:Y1=Y*8+32:R
   ETURN
RD 160 FOR DE=15 TO R STEP -0.25:POKE 712
   ,DE:NEXT DE
KB 161 COLOR 32:PLOT XB,YB:TS=15:FR=R:TX=
   R
NU 162 FOR J=R TO 150 STEP 2
VR 164 SOUND R,J,4,TS-J/10:SOUND S,100+J,
   6,TS-J/10
BZ 166 IF J>60 THEN NEXT J:SOUND R,R,R,R:
   SOUND S,R,R,R:COLOR 32:PLOT X,Y:GOTO 4
   00
BX 168 IF J=TX THEN U=USR(SL,ST+64,SL2+FR
   *8):COLOR 136:PLOT X,Y:FR=FR+S:TX=TX+1
   0
HO 169 NEXT J
ZN 170 IF TW THEN 174
KU 171 F1=3:F2=5:F3=3:TC=14:COLOR 32:PLOT
    X,Y:TT=INT(RND(0)*5)+15:POKE 19,R:POK
   E 710,56:OIL=R:RESTORE 176
LJ 172 FOR J=S TO 8:READ SD,TN:SOUND S,SD
   ,10,12:FOR DE=R TO TN:NEXT DE:SOUND S,
   R,R,R:NEXT J
WL 174 TRS=S:GOTO 412
GQ 176 DATA 108,10,0,0,108,10,0,0,108,6,1
   28,15,144,15,162,10
LB 180 KY=(Z=122 AND YLW)+33*(Z=90 AND GR
   Y)+129*(Z=250 AND WHT):IF  NOT KY THEN
    140
GR 182 TR=INT(RND(0)*6):IF BOX(TR)=R THEN
    182
KX 184 FOR J=4 TO 11:LOCATE J,23,Z1:IF Z1
   =KY THEN 188
FU 186 NEXT J:GOTO 140
KB 188 COLOR Z+2:PLOT X,Y:L=(Y*20)+(X+S)+
   H(SCN)-S:A$(L,L+S)=CHR$(Z+2):IF BOX(TR
```

```
   )=32 THEN BOX(TR)=R:GOTO 550
OU 190 COLOR BOX(TR):PLOT J,23:TR1=BOX(TR
   ):BOX(TR)=R
HT 191 SPL=SPL+S:IF SPL=4 THEN A$(855,857
   )="█  "
CY 192 IF TR1=4 THEN SHLD=S:MSG$(36)=MSG2
   $(89,103):GOTO 500
KN 194 IF TR1=134 THEN U=USR(SL,ST+96,SL3
   ):PRL=S:MSG$(36)=MSG2$(5,20):GOTO 500
UU 196 IF TR1=5 THEN U=USR(SL,ST+104,SL3+
   8):HLMT=1:MSG$(36)=MSG2$(49,75):GOTO 5
   00
OR 198 IF TR1=39 THEN MSG$(36)=MSG2$(21,4
   8):A$(3721,3721)=" ":GOTO 500
LR 200 FOR J=50 TO R STEP -2:FOR DE=15 TO
    R STEP -2:SOUND R,DE+J,10,DE:POKE 712
   ,60-DE:NEXT DE:NEXT J:POKE 712,R
OB 201 POKE 710,56
AI 202 COLOR 32:PLOT X,Y:COLOR 163:PLOT 1
   2,23:SPL=5:CG=32:MSG$(36)=MSG2$(279,32
   2):A$(1677,1677)=" ":RBY=S
VV 204 U=USR(SL,ST+64,SL2+56):GOTO 500
RO 205 COLOR 32:PLOT X,Y
SP 206 FOR J=4 TO 11:LOCATE J,23,Z1
JF 207 IF Z1=32 THEN COLOR 221:PLOT J,23:
   A$(1674,1678)="    ⊞":A$(855,855)=" ":M
   SG$(36)=MSG2$(76,88):GOTO 500
HA 208 NEXT J
BD 210 COLOR 32:PLOT X,Y:TRS=S
GX 212 FOR DE=15 TO R STEP -S:SOUND R,40+
   DE,10,DE:NEXT DE
MA 214 IF Z=33 THEN GRY=GRY+S:KY=S:IF GRY
   =2 THEN KY=2
CL 215 IF Z=S THEN YLW=YLW+S:KY=4:IF YLW=
   2 THEN KY=5
MT 217 IF Z=129 THEN WHT=WHT+S:KY=7:IF WH
   T=2 THEN KY=8
RV 220 POSITION KY+3,23:? #6;KEY$(KY,KY):
   GOTO 412
JW 300 RW=INT(RND(0)*4):RX=RW*7+S:P0$=WPN
   $(RX,RX+6):SHLD1=R
DQ 305 PMB=USR(ADR("hhh0%j8e0NTUhho
   >hhIP..  /PP.PMKNPP
   MKNeULT"),16,3,S)
HU 310 U=USR(ADR("h&NPKHPfLJPVSMP
   KePY")):ET=ZT(RW):POKE 77,R
CJ 315 IF SCN=18 OR FP THEN Y1=Y*8+32:TM=
   4:FP=R:COLOR 142:PLOT X,Y
ZF 320 KOL=INT(RND(0)*14)+2:KOL=KOL*16-6:
   IF SHLD THEN SHLD1=INT(RND(0)*2)
KY 330 U=USR(ADR(P$),PMB,0,ADR(P0$),X1,S,
   S,Y1,7):POKE 704,KOL:ARW=R
SX 332 IF SCN=18 THEN 340
MK 336 TW=TW-S:IF TW=R THEN TC=TCC:TM=4
EP 338 IF TW>R THEN TM=2
RL 340 FOR X1=20 TO 222 STEP ET:POKE 5324
   8,X1:SOUND R,X1,10,6
ER 341 IF PEEK(53252)>7 THEN 360
HJ 342 POKE TJ,R:NEXT X1:POKE 704,R:SOUND
    R,R,R,R
DS 350 IF KILL THEN KILL=R:GOTO 400
ZY 355 RETURN
EE 360 IF SHLD1 THEN NEXT X1:SOUND R,R,R,
   R:POKE TJ,R:RETURN
KH 361 POKE 623,4
LF 362 FOR DE=15 TO R STEP -3:SOUND R,X1-
   DE,10,DE:NEXT DE:POKE TJ,R:POKE 704,R:
   KILL=S:COLOR 137:PLOT X,Y:NEXT X1
MN 400 COLOR 137:PLOT G,23:MSG3$(G-6,G-6)
   ="█"
LQ 410 G=G-S:IF G=12 THEN POP :DE=4:SPL=0
   :GOTO 730
XG 412 L=(Y*20)+(X+S)+H(SCN)-S:A$(L,L)="
   "
JF 415 IF TRS THEN X=X-NX:Y=Y-NY
CV 420 TRS=R:RETURN
TH 500 FOR J=Y-4 TO Y-2:COLOR 32:PLOT R,J
   :DRAWTO 19,J:NEXT J:B=S:RESTORE 560
QI 504 LTH=LEN(MSG$)+S:MSG$(LTH)=MSG3$
XD 506 FOR J=S TO LTH:READ MUS
OY 508 POSITION R,Y-3:? #6;MSG$(J,J+19)
WK 509 IF MUS=R THEN SOUND R,R,R,R:SOUND
   S,R,R,R:GOTO 512
RQ 510 SOUND R,MUS,10,14:SOUND S,MUS+2,10
   ,12:B=B+S:IF B=82 THEN B=S:RESTORE 560
JT 512 FOR DE=S TO 20:NEXT DE:NEXT J
KX 514 FOR J=S TO 10:SOUND R,C(J),10,10:S
   OUND S,C(J)/2,10,10
NR 516 FOR DE=S TO 25:NEXT DE:NEXT J
DP 518 FOR DE=S TO 40:NEXT DE:SOUND R,R,R
   ,R:SOUND S,R,R,R:SOUND 2,R,R,R
MG 520 IF EOG THEN 740
XU 521 IF  NOT BGN THEN BGN=S:RETURN
HC 522 POSITION R,R:? #6;A$(H(SCN),H(SCN+
   S)):X=X-NX:Y=Y-NY
KU 524 POKE 19,R:TT=T:RETURN
EQ 550 COLOR 32:PLOT J,23:FOR DE=15 TO R
   STEP -0.2:SOUND 0,240,12,DE:NEXT DE
BW 552 X=X-NX:Y=Y-NY:RETURN
EA 560 DATA 152,152,136,136,114,114,136,1
   21,136,152,182,204,230,230,230,204,182
   ,182,152,136,136,204,182,182,204
PW 565 DATA 204,182,204,230,230,204,182,1
   52,136,204,204,136,152,182,204,230,230
   ,0,0
JD 570 DATA 230,204,204,182,182,152,136,1
   36,204,136,152,182,204,204,230,204,204
   ,182,204,136,136,152,182,182,204
PX 575 DATA 230,230,204,182,152,136,121,1
   36,114,114,136,136,152,152
AE 600 X=20*(X<R)+(X>19)-S:GOTO 610
HR 605 Y=23*(Y<R)+(Y>22)-S
RT 610 POKE 559,R:FLIP=2*(X=19)-2*(X=R)+6
   *(Y=22)-6*(Y=R):SCN=SCN+FLIP
PE 612 IF SCN=20 THEN 700
EY 614 POSITION R,R:? #6;A$(H(SCN),H(SCN+
   S)):XB=X:YB=Y
YL 620 IF SCN=18 THEN 635
PA 625 IF TU THEN TU=R:GOTO 640
RO 630 IF TW THEN FP=S
ZO 632 RETURN
UC 635 U=USR(SL,ST+96,SL3+CG):U=USR(SL,ST
   +104,SL3+CG):U=USR(SL,ST+80,SL3+CG):TU
   =1
AQ 636 IF T>S THEN LR=S:TM=35
AD 637 RETURN
CI 640 IF T<S AND  NOT RBY THEN POKE 710,
   R:ARW=R
UH 642 U=USR(SL,ST+80,SL3+16):LR=R:TM=4
SY 650 IF PRL THEN U=USR(SL,ST+96,SL3)
GL 655 IF HLMT THEN U=USR(SL,ST+104,SL3+8
   )
ZO 660 RETURN
JL 700 POSITION R,R:? #6;"█":Y=10:EOG=S:P
   OKE 710,202:POKE 708,136:POKE 709,56
MW 702 COLOR 15:PLOT R,R:DRAWTO 19,R:DRAW
   TO 19,22:DRAWTO R,22:DRAWTO R,S
GH 704 DRAWTO 18,S:DRAWTO 18,21:DRAWTO S,
   21:DRAWTO S,S:POKE 559,34
AU 710 IF SPL<5 THEN MSG$(36)=MSG2$(118,2
   48):MSG3$(8,14)="███████":GOTO 500
LU 712 MSG$(36)=MSG2$(118,167):MSG$(86)=M
   SG2$(249,438):U=USR(SL,ST+64,SL2+56):G
   OTO 500
ZX 730 FOR JJ=S TO 7:FOR J=-15 TO 15 STEP
    DE:SOUND R,102,10,15-ABS(J):SOUND S,2
   43,10,15-ABS(J)
EC 735 POKE 708,15-ABS(J):NEXT J:DE=DE-0.
   5:NEXT JJ
HU 736 FOR DE=S TO 250:NEXT DE
CA 738 POSITION R,R:? #6;"█":POKE 708,200
   :POKE 710,56
DD 740 IF SPL=5 THEN 800
SE 741 POSITION 6,3:? #6;"you have":POSIT
   ION 2,5:? #6;"failed to rescue":POSITI
   ON 2,7:? #6;"the LADY TANUKI"
QK 742 COLOR 137:PLOT 7,10:DRAWTO 13,10
VO 750 POSITION 3,13:? #6;"PRESS START TO
   ":POSITION 5,15:? #6;"PLAY AGAIN"
OW 751 FOR DE=1 TO 300:NEXT DE
HD 752 IF PEEK(53279)=6 THEN POKE 559,R:?
    #6;"█":GOSUB 5000:GOSUB 6020:GOTO 12
RR 754 GOTO 752
DY 800 POSITION R,R:? #6;"█":L=S:T=-0.35:
   Y=3:POKE 709,14
BS 805 FOR PP=S TO 6:KOL=INT(RND(0)*14)+2
   :KOL=KOL*16-2:FR=R:TX=15:K=10:U=USR(SL
   ,ST+64,SL2+64)
PG 810 FOR J=30 TO 15 STEP -S:COLOR 8:PLO
   T K,J-8:SOUND 0,J+J*2,4,J-15:COLOR 32:
   PLOT K,J-8
OM 815 K=K+T:SOUND R,R,R,J-15:NEXT J:T=T+
   0.12
ZO 820 U=USR(SL,ST+64,SL2):POSITION L+2,Y
   :? #6;"██":POSITION L+S,Y+S:? #6;"████
   ":POSITION L+2,Y+2:? #6;"██"
ST 825 FOR V=S TO 65 STEP INT(RND(0)+2)+2
   .5
UV 830 SOUND R,V,4,(60+RND(0)+50)/V:SOUND
    S,V+120,8,(80*RND(0)+50)/V
XC 835 IF V>TX THEN U=USR(SL,ST+64,SL2+FR
   *8):FR=FR+S:TX=TX+10:KOL=KOL-2:POKE 71
   1,KOL
QM 840 NEXT V:? #6;"█":SOUND R,R,R,R:SOUN
   D S,R,R,R:POSITION 4,4:? #6;D$(S,L):L=
   L+2
TJ 845 FOR DE=S TO 120:NEXT DE:NEXT PP
```

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```
IT 850 FOR DE=15 TO R STEP -0.1:POKE 709,
   DE:NEXT DE:GOTO 750
GG 1000 R=0:S=1:GRAPHICS R:POKE 559,R:POK
   E 710,R:POKE 752,S:DL=PEEK(560)+256*PE
   EK(561):COLOR 32:PLOT 2,R
ID 1002 POKE DL+6,5:POKE DL+15,5
FM 1005 FOR J=8 TO 13:POKE DL+J,6:NEXT J:
   POKE 708,104:POKE 709,200:POKE 711,104
   :POSITION 5,3:? #6;"THE secret"
ZC 1010 POSITION 9,4:? #6;"OF":POSITION 6
   ,5:? #6;"kyobu di"
RW 1020 POSITION 11,6:? #6;"By  Bernard T
   aylor"
UX 1025 COLOR 115:PLOT 2,5:DRAWTO 37,5:PL
   OT 6,7:DRAWTO 33,7:POKE 559,34
NJ 1100 DIM A$(4140),B$(460),KEY$(8),RBY$
   (48),MSG$(300),MSG2$(470),MSG3$(22),ZT
   (4),BOX(5),BOX1(5),C(10),D(8),H(22)
UH 1105 DIM CHG$(40),D$(11),WPN$(28),TOR$
   (25),TOR2$(48),XPL$(72),P0$(7),P$(92):
   WPN$="▨▨7f▨▨▨▨▨▨▨▨▨▨▨*▨6▨*▨▨▨2▨2▨▨"
MZ 1106 DIM CSET$(171)
HT 1107 KEY$="!! ▨▨ CC":D$="s h o g u n"
IA 1110 M=5:N=101:O=201:P=301:Q=401:TJ=53
   278
QI 1150 CSET$(1,85)="▨▨ R_R%▨▨▨▨▨▨▨18▨▨B
   ▨ZfZf<▨▨▨▨▨▨T▨▨▨▨▨>:::6▨▨▨▨▨▨▨▨▨▨▨▨▨
   ▨▨▨▨▨▨▨▨▨▨1▨8▨▨▨▨▨▨▨▨▨▨▨▨<V"
MD 1160 CSET$(86,171)="jVj<▨▨▨▨▨▨▨▨▨▨▨▨▨
   ▨▨▨▨▨▨▨▨▨▨▨▨▨▨▨▨▨▨▨▨▨▨▨<ffff<▨:▨▨?e▨
   ▨a?;▨<▨▨z4▨<<?A▨A▨a?=▨▨>Uk>▨▨"
DT 1200 ST=(PEEK(742)-2)*256:CH=5:W=8
AJ 1210 XSR=57352:XDS=ST+8:XCNT=504:GOSUB
    31000:RESTORE 4100
MJ 1212 PCSET=ADR(CSET$):FOR X=1 TO LEN(C
   SET$) STEP 9
ZQ 1215 OFFSET=ASC(CSET$(X,X))
AC 1220 XSR=(PCSET+X):XDS=OFFSET*8+ST:XCN
   T=8
BW 1221 GOSUB 31000
LQ 1222 NEXT X
WI 1223 FOR J=2 TO 19:READ SH:H(J)=SH:NEX
   T J
EX 1224 FOR J=R TO 3:READ SH:ZT(J)=SH:NEX
   T J
OL 1225 FOR J=R TO 5:READ SH:BOX1(J)=SH:N
   EXT J
FV 1226 TOR$="hh▨Lh▨Kh▨Oh▨N▨▨1NrKHerPW▨":
   SL=ADR(TOR$)
WK 1227 TOR2$="▨▨▨▨▨$▨▨▨▨▨▨▨▨$▨▨▨▨▨▨▨$▨▨(t
   h▨▨$▨▨t(\▨▨$▨▨▨.t▨▨$▨▨":SL1=ADR(TOR2$)

DW 1228 CHG$="▨▨▨▨▨▨▨▨▨▨▨▨▨▨▨▨▨▨▨▨▨▨▨▨▨▨
   ▨▨▨▨▨▨▨▨▨▨▨▨":SL3=ADR(CHG$)
GT 1229 P$="hh▨Uh▨T▨▨fUh▨h▨Lh▨Khh▨▨Phh
   ▨▨Phh▨▨▨▨▨▨▨▨▨▨▨▨▨▨▨▨▨▨▨▨▨▨▨▨▨▨
   P▨hh▨Ohh▨SP1KfPSQrTfQJPQ▨"
IJ 1232 XPL$="▨▨$▨<▨▨▨▨&Z4R▨▨ ▨,V5:▨▨LB
   ^5▨▨L▨▨▨▨▨e ▨LB^5▨▨L▨▨▨▨1▨8▨▨▨▨▨▨▨▨
   ▨▨▨▨▨▨▨":SL2=ADR(XPL$)
OP 1236 RBY$="▨▨▨8T8▨▨▨(D8▨8▨▨T(▨8▨8▨▨▨▨
   8T8▨▨▨(D8▨8▨▨T(▨8▨8▨":SL4=ADR(RBY$)
AV 1238 FOR J=5 TO 10:READ SH:C(J)=SH:NEX
   T J
LU 1240 MSG$="                         YOU HAV
   E FOUND "
KM 1242 MSG2$="▨▨▨%▨▨▨w▨%jc%▨▨▨▨▨h%qm▨%vd
   fw▨a%vrjwa%jc%opvql f▨%qm▨%bjia▨k%m▨ih▨
   q%jc%qwpqm%d%idwb▨%wpg▨▨%"
KB 1244 MSG2$(89)="D%FJHHJK%VMLeIA%DK%eHU
   Q\%GJ]%QMe%VeFWeQ%MLALKB%UIDFe%JC%NNJG
   P%AL%%%%%%%%"
UJ 1246 MSG2$(158)="Me%IDPBMV%GeFDPVe%\JP
   %IDFN%QMe%JKe%QMLKB%QMDQ%FJPIA%AeCeDQ%
   MLH%%%%%%%%DKA%QMeK%Me%NLIIV%\JP"
KX 1248 MSG2$(249)="PKQLI%Me%KJQLFeV%QMDQ
   %\JP%MDSe%qm▨%dii▨v▨▨1kb▨wpg▨▨▨▨▨%jc%q
   m▨%bw▨dg%gpaand%%%"
SJ 1250 MSG2$(326)="%%%%%%%NNJGP%AL%GJRV%
   QRLFe%DKA%QMeK%%%%%%%%FJHHLQV%MDWD%NLW
   L%%%%%%%%"
EF 1252 MSG2$(394)="▨jp%mds▨%vpff▨vvcpii▨
   %w▨vfp▨a%qm▨%idal%gdkpnl"
WD 1254 U=USR(ADR("hh▨Lh▨Kh▨Nh▨Mhh▨O▨▨&NP
   ▨IKEO▨KHPWfLJPr&MPIKEO▨KHJPU▨"),ADR(M
   SG2$),LEN(MSG2$),5):RETURN
HR 2999 END
AH 3020 RETURN
QE 4100 DATA 1,460,461,920,921,1380,1381,
   1840,1841,2300,2301,2760,2761,3220,322
   1,3680,3681,4140
OZ 4105 DATA 3.5,3.5,4,4.5
CJ 4110 DATA 4,5,39,134,32,32
GT 4120 DATA 152,136,204,204,136,152,182,
   204,230,230
RH 4500 FOR JJ=5 TO 5:FOR J=-15 TO 15:SOU
   ND R,200,10,15-ABS(J):SOUND 5,243,10,1
   5-ABS(J)
ER 4502 POKE 711,15-ABS(J):NEXT J:NEXT JJ
   :POKE 711,104
YG 4503 FOR DE=1 TO 80:NEXT DE
MH 4505 GRAPHICS 17:POKE 559,0:POKE 756,5
   T/256

EZ 5000 A$(M)="//  /  /  /  / / / ///-///
   ///   // / ▨ /   /   /▨/-/  /   /,///
   -/,//// / ///,// ▨ / /      ▨ /  ▨   /"
LS 5005 A$(N)="// / ///▨  ▨/,/// /  /
   ///-///    / //,////-/ / / /// /
   ▨ ▨ /       ▨/ ///-////// ///-///// /"
OE 5010 A$(O)="// ▨     ▨         /// /,/
   // ///▨/,/ / ▨ / / / /,///// / / /  /
   /     /      / / /////,//,/     /,// / /"
RA 5015 A$(P)="          / ///// /  / ///-///
   / / ▨    / ▨/ /    /     ///,/ /  / /,///
   //-/▨    / / // /    ▨/ /     ▨▨/ /▨/  /"
OK 5020 A$(Q)="//// //-///// /// ▨/      /
   ▨        /////////////////////////"
SJ 5100 B$(M)="// //// // /  / // //▨ ▨//
   ▨ /  /  ▨ / /     ▨      //////-/  ////
   //-///    ▨   /// ▨   /     / //-// /  "
DL 5105 B$(N)="//,/ / /▨/ /   /   ▨ /   / /
   // ////    /-// /▨/ ////    //-/   /
   / ▨    / / /    /-// ////// / /,/ //"
TC 5110 B$(O)="  /     ▨ ▨ / / /      // / /▨
   /// /,/ / / ▨// / /           /,/// / /
   ///-/,/////   // / /     / / ▨       /-"
IC 5115 B$(P)="/ /// / ////// /▨          /
   /    ▨ ▨/,///////// / /▨/ //          ▨/
   / / ▨ // /// ///        / ///     /// /  "
ET 5120 B$(Q)="///,/    //,/ /// / /  ▨
   /  ▨ /        ///////////////////////":A$
   (461)=B$
IB 5200 B$(M)="/ / / // / / / // /// / /
   /,/ / /        // / /▨ / / / / //   / /
   /    /    / / // /// /▨ / /-/ / /  ▨ / "
SO 5205 B$(N)="/ ▨/ ▨ /    /,/-////-/  / /
   / / / /    ▨ // / / / / / / ////////,/
   -///,/-/ / /     /   ▨   /      / / ////"
CV 5210 B$(O)="/-// //-/  ▨     / / /
   / /▨ /   // / // /  Z▨/ ///// / / / /
   ▨/       // / // // /,////// /   /  / /"
XX 5215 B$(P)="/         ▨   / / / //,/////▨/▨/▨
   /▨// /    ▨    / ▨      / // / / ///▨/▨
   /▨/▨// // /-/▨▨ /    ▨       / / / /    "
PR 5220 B$(Q)="/▨/▨/▨/▨// / // /////
   ▨      //         ///////////////////////":A$
   (921)=B$
DK 5300 B$(M)="// // /  // / /   ////
   ///-/ /  ▨▨//,//-/  /     /     /  ▨
   / ///-///-/   /////-/  ▨/ /▨/ /,/ /"
GC 5305 B$(N)="     / / / / / /▨/ /-/-/▨/ /
   ▨ /   /      / / / /// ///-/ ▨ / /// /
   ▨     // / / /// /  ▨/ // ////    / / /"
KN 5310 B$(O)="////            ▨ ▨   /    / /
   //////// ///////-//// /   //  ▨  /// /
      ▨     Z ////// /// // /▨        /// /"
NP 5315 B$(P)="      /▨ // ///-///// //▨///
        /       / ▨       //,//-//    ▨ /////
   /,/    ▨  //-//// ▨    / //////
GL 5320 B$(Q)="//,// /,///   /-/-/ /    /
   /    ▨/ / / ///  / /  / / / / / /":A$
   (1381)=B$
KS 5400 B$(M)="/ / / // / / // / / //▨/,/
   // /  / ▨  / /     ▨ ▨/ / //////// /
   ////// / ▨    ▨   /-//        / //-////"
CN 5405 B$(N)="// // /-//// /  /
   / /     / ▨/,////////,/ / //// //     ▨
     / /,/      /// ///// / /-/// /     "
OF 5410 B$(O)="/     ▨   ▨ / / //▨▨///// ////
   / / /               // /,////// / //////
    // / ▨   /Z / / ▨/ / / /▨/-////,/"
EX 5415 B$(P)="/// ▨/ //,/     ▨      Z/ //
   /▨ ////// ////// //,// /      ▨ /
   ▨ / ///,////-/-//    ▨//-/            "
VA 5420 B$(Q)=" //////// /,/-/-//   /
    //-// /     // ////  // /   / // /":A$
   (1841)=B$
NA 5500 B$(M)="/ /  /  / // // / // / /
   / /▨// // ////  ▨ // / /    ▨      /
   // /,/ /////// // /      / / /   ▨  "
NF 5505 B$(N)="/ /////,//     //-///// ▨ ▨
   / // / / //      / /   / /▨ /  // ////  /Z
   /        / /  / /// /,/-// /-/,/ //
AX 5510 B$(O)="/    /▨ / /  /▨ /     ///,/▨▨
   / / /  / /,///// ////  / / ▨/ / /▨   // /
   / / ▨/ ///▨//  / //// / //             "
AL 5515 B$(P)="/ // /    / // //////
   ▨ ///-//,/     / ▨/// /         //// /
   ▨    /  ///////  / / ///-// ///      /"
```

```
YD 5520 B$(Q)="/,/-/ /      /      //-/ / / /
   /♠ / /-/,/   / / / / / // / / / // //":A$
   (2301)=B$
PH 5600 B$(M)="////////////////////////
   / ♠/       ■  //// / / ■/ /// /// / /,
   / /  /,/     / // // /         / //// / /"
NJ 5605 B$(N)="     / /■/////// / / /// / /
     ■      / / // /-////,//-// / / / / /
   ////     / /  // /           ■ ■ / / /,/"
YD 5610 B$(O)="/ ///,/////// / ■ / //,/ /
     ! / / /-/ /     ////-/ / /■/ / ////
       / / /     / /   ///-//// / / //// /"
JB 5615 B$(P)="/ /        ♠/ /   /    ////,/
   //-/ / /-/ ■//     / /   ■ / / / ////////
   / /////////      /Z/ ■       //   ■  /// /"
UX 5620 B$(Q)="//-////    / ■/,//      / /
   / ■/  / // ////// // /   /// / /  ///":A$
   (2761)=B$
GQ 5700 B$(M)="////////////////////////
    /  ■    ■  / /// // / // /// /,/// /
   /// / /    /■/     / /   ■ ■ /    / / /"
EU 5705 B$(N)="  // / / / / // / / / / / /
    / / ■ / /     //■ ■ / / /// //■/ /,/
    / /♠♠   ■  / /  / /     ///,//////-/ /"
WP 5710 B$(O)="//,/-////          ■      /
     / /-////////-///////-/ ■ /          /
   / ////// / // ■ // / /          / /    "
DI 5715 B$(P)="/ / /,// ////■ //-// / ■
    / /    ■  /■ ///// ■/ / / //// /    / /
   //■/ /-// /♠ ///    ■     / / / //// ■ "
JJ 5720 B$(Q)="/// ////-/ ■/ ////// //  / /
     / /       / / / / // // / / // / /":A$
   (3221)=B$
JI 5800 B$(M)="///////////////////////   * *
     / * !   * / /   / //,/ /-/-/,/ //////
   -/  / /    / /    /   * //,/,//-,/ ////"
TJ 5805 B$(N)="//-/ /    /    /    *  /   /   /,/
   /,/,//   //,/,///-/ /   /    ////  / // /
    *  /   *  /-,/    /    / /,//,//    * / /"
EX 5810 B$(O)="/-////     *   /-///,/,//      /
   -//  /   *   *  ///-//   * ///,//,/ //
    *  / * / *   /    /   /-////,/ /-/,//,/"
FS 5815 B$(P)="/-// /       /-/ /    * // *  /
    /-// / ////   /-/,//,/   / / *   / // /
    * /-//-/,//-/-// /,//// *   /      /  "
RT 5820 B$(Q)="/-/    / ///,-/,/-,/,/// //,/
   // *  * /    /  / /  / / / // // / /":A$
   (3681)=B$
ZY 6000 FOR J=R TO 5:BOX(J)=BOX1(J):NEXT
   J:U=USR(SL,ST+80,SL3+16):U=USR(SL,ST+9
   6,SL3+24):U=USR(SL,ST+104,SL3+24)
TQ 6005 POKE 708,8:POKE 709,26:POKE 710,5
   6:POKE 711,14:SCN=2:ARW=R:FP=R
FI 6010 TC=14:TM=4:F1=3:F2=5:F3=3:G=19:SP
   L=R:RBY=R:HLMT=R:PRL=R:L=1240:LR=R
LD 6012 SHLD=R:TU=R:EDG=R:TW=R:OIL=R:GRY=
   R:YLW=R:WHT=R:BGN=R:CG=24:POKE 559,34
NF 6015 FOR J=1 TO 3:B=INT(RND(0)*4)+1:B=
   B*2:B=B+L:A$(B,B)=" ":L=L+40:NEXT J:RE
   TURN
KD 6020 MSG3$="                          "
DU 6025 POSITION 2,6:? #6;"PRESS OPTION F
   OR":POSITION 4,8:? #6;"RANDOM  KEYS":P
   OSITION 8,10:? #6;KEY$(5,5)
NB 6030 POSITION 4,16:? #6;"OR SPACE BAR"
   :POSITION 6,18:? #6;"TO BEGIN":POKE 76
   4,R
EP 6035 IF PEEK(53279)=3 THEN W=4:GOTO 60
   50
XN 6040 IF PEEK(764)=33 THEN RETURN
UH 6045 GOTO 6035
EP 6050 A$(370,370)=" ":A$(3553,3553)=" "
   :A$(3713,3713)=" ":A$(2990,2990)=" "
ST 6055 FOR J=5 TO 7:D(J)=H(W):W=W+2:NEXT
   J
PA 6060 FOR J=5 TO 5
OB 6062 L=INT(RND(0)*7)+5:IF D(L)=R THEN
   6062
SX 6064 KY=D(L)+21
AL 6066 KY=KY+INT(RND(0)*18):KY=KY+20*INT
   (RND(0)*21)
WN 6067 IF A$(KY,KY)<>CHR$(32) OR A$(KY-2
   0,KY-20)=CHR$(45) OR A$(KY+20,KY+20)=C
   HR$(44) THEN 6062
PY 6068 IF A$(KY+5,KY+5)=CHR$(170) OR A$(
   KY-5,KY-5)=CHR$(170) THEN 6062
XR 6070 A$(KY,KY)=KEY$(J,J):FOR DE=-10 TO
   10:SOUND R,144,10,10-ABS(DE):SOUND 5,
   96,10,10-ABS(DE):NEXT DE
HG 6071 COLOR 32:PLOT J+7,10:IF J=2 THEN
   J=3
ZW 6072 D(L)=R:NEXT J:RETURN
DH 31000 JNK=USR(ADR("hhhhhhhhhhhhhhh
   ■♥IP■■■■P■■U■■P■■■■■■■P■■■■■■■■"),XSR,XDS,
   XCNT):RETURN
```

LISTING 2

```
AN 10 REM THE SECRET OF KYOBU DI, LISTING
    2
JN 20 REM BY BERNARD TAYLOR
GX 30 REM (c) 1985,1989 ANTIC PUBLISHING
PS 35 REM ( CREATES LINES 305-310, 1105,
   1150-1160, 1226-1236, 1254 & 31000 FOR
    LISTING 1 )
EV 40 REM (LINES 10-250 MAY BE USED WITH
   OTHER BASIC LOADERS IN THIS ISSUE.
IJ 50 REM CHANGE LINE 70 AS NECESSARY.)
PR 60 DIM FN$(20),TEMP$(20),AR$(93):DPL=P
   EEK(10592):POKE 10592,255
WO 70 FN$="D:LINES.LST":REM THIS IS THE N
   AME OF THE DISK FILE TO BE CREATED
RD 80 ? "}Disk or Cassette?";:POKE 764,25
   5
PY 90 IF NOT (PEEK(764)=18 OR PEEK(764)=
   58) THEN 90
TH 100 IF PEEK(764)=18 THEN FN$="C:"
VB 110 POKE 764,255:GRAPHICS 0:? "      AN
   TIC'S GENERIC BASIC LOADER"
MY 120 ? ,"BY CHARLES JACKSON"
KB 130 POKE 10592,DPL:TRAP 200
PU 140 ? :? :? "Creating ";FN$:? "...plea
   se stand by."
LW 150 RESTORE :READ LN:LM=LN:DIM A$(LN):
   C=1
BQ 160 AR$="":READ AR$
YC 170 FOR X=1 TO LEN(AR$) STEP 3:POKE 75
   2,255
DM 180 LM=LM-1:POSITION 10,10:? "(Countdo
   wn...T-";INT(LM/10);")    "
BK 190 A$(C,C)=CHR$(VAL(AR$(X,X+2))):C=C+
   1:NEXT X:GOTO 160
MM 200 IF PEEK(195)=5 THEN ? :? :? "TOO
   MANY DATA LINES!":? "CANNOT CREATE FIL
   E!":END
CM 210 IF C<LN+1 THEN ? :? "TOO FEW DATA
    LINES!":? "CANNOT CREATE FILE!":END
UQ 220 IF FN$="C:" THEN ? :? " Prepare ca
   ssette, press [RETURN]"
AR 230 OPEN #1,8,0,FN$
PV 240 POKE 766,1:? #1;A$;:POKE 766,0
AL 250 CLOSE #1:GRAPHICS 0:? "COMPLETED
   "
KM 1000 DATA 1167
RM 1010 DATA 051048053032080077066061085
   0830820400650680820400341041041041332
   07165106056229207141007212133
OX 1020 DATA 213104104141111002162062104
   1042010012400021620461420470021690031
   41029208224046240014169000133
NA 1030 DATA 205133203169005133206169003
   2080121691281332051332031690021332061
   69001024101213133204169000133
WY 1040 DATA 212096034041044049054044051
   0440830411550510490480320850610850830
   82040065068082040034104169000
ET 1050 DATA 166206240012160000145203200
   2082512302042022082461642052400071361
   45203192255208249096034041041
PJ 1060 DATA 058069084061090084040082087
   0410580800790750690320550550440821550
   49049048053032068073077032067
CP 1070 DATA 072071036040052048041044068
   0360400490490410440870800780360400500
   56041044084079082036040050053
WI 1080 DATA 041044084079082050036040052
   0560410440880800760360400550500410440
   80048036040055041044080036040
SM 1090 DATA 057050041058087080078036061
   0340060120270551021961280022550020000
   00000000000804202805402804200
VQ 1100 DATA 000000050031050000000034155
   0490490530480320670830690840360400490
   44056053041061034001000032082
SA 1110 DATA 095082037000000000312413021
   4186214108056016004066126090102090102
   060024005016146186254146084124
MF 1120 DATA 238006000028062058058058054
   0280071280962240480240120060030080000
   00000000000000000000009000124
NP 1130 DATA 254146130108000056010028008
   0080008000800080280110000600860341550
   49049054048032067083069084036
QO 1140 DATA 040056054044049055049041061
   0341060861060600000121261892192552552
   19189126013126189219255255219
AX 1150 DATA 189126014000000000000000000
   0000000151261892192552552191891260160
   00060102102102102060000058252
```

continued on next page

```
XN 1160 DATA 12619106419123709706305900000
   600001261220520240600600630651300651912
   37097063061000000062085107
YL 1170 DATA 0620280008034155049050050054
   03208407908203606103410410413320410413
   32031041332071041332061600000
DS 1180 DATA 17720614520320019200820824709
   6034058083076061065068082040008407908
   20360411550490500500550320840
MK 1190 DATA 07908205003606103400000000000
   01260360240240000000000000012603602402
   40000000000000126036024024040
BR 1200 DATA 11610400012603602402411604009
   20000126036024024020046116000126036024
   024034058083076049061065068
ZJ 1210 DATA 08204008407908205003604115504
   9050050056032067072071036061034126255
   0002550000000000000000000000
WS 1220 DATA 00025500025512602800080080080
   0800080028126189219255255189219126126
   189195219219195189126034058
IH 1230 DATA 08307605106106506808204006707
   2071036041155049050050057032080036061
   034104104133213104133212133
SR 1240 DATA 20823021323021310410417010413
   3204104133203104104157000208104104157
   008208104104201001240018224
PT 1250 DATA 00114402724000623021322400224
   0019169128133212208013230213230213224
   000240005230213202208251104
QA 1260 DATA 10413320910410417016420817720
   3230208164209145212230209202208241096
   034155049050051050032088080
IL 1270 DATA 07603606103400000000360240600
   2000000000001603809005208200400003200
   9044086053058167010001076186
HA 1280 DATA 09405312603007600100112801600
   4000106403200107618609405312603007600
   0124254146130108000056000000
DV 1290 DATA 00012712700000000000000000000
   1601600000000000340580830760500610650
   68082040088080007603604115504 9
IX 1300 DATA 05005105403208206608903606103
   4000000000000005608405601600000000400
   68056124056016146084040130056
MO 1310 DATA 12405614600000000000000560840
   5601600000000040068056124056016146084
   040130056124056146034058083076
LE 1320 DATA 05206106506808204008206608903
   6041155049050053052032085061085083082
   040065068082040034104104133
VZ 1330 DATA 20410413320310413320610413320
   5104104133207160000166206240014177203
   069207145203200208247230204
NK 1340 DATA 20220824216620524001017720306
   9207145203200202208246096034041044065
   068082040077083071050036041
KR 1350 DATA 04407606907804007708307105003
   6041044053041058082069084085082078032
   155051049048048048032074078
GU 1360 DATA 07506108508308204006506808204
   0034104104133241104133240104133213104
   133212104133239104133238160
ER 1370 DATA 00017724014521223021220800223
   0213230240208002230241198238208234198
   239016230096034041044088083
AS 1380 DATA 08204408806808304408806707808
   40410580820690840850820780 32155
```

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SOFTWARE, ETC.

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Insertion Orders: May 1
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On Sale: Last week of June

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Artwork: June 7
On Sale: Last week of July

Tech Tips

DEFAULTWRITER+ COMPANIONS 1 & 2

BY PAUL ALHART

These short BASIC programs let you control the default buzzer settings for AtariWriter+ and the AtariWriter+ Proofreader. DefaultWriter will only work with the *48K versions* of these programs.

DefaultWriter Companion #1 (DWC1.BAS) lets you disable that annoying buzzer when you start the program. The effect is the same as typing [CONTROL] [B] from the main menu, and you can still use [CONTROL] [B] to turn the buzzer on and off.

As a bonus, you can also change the duration of the buzzer with Companion #1. Even with the buzzer disabled, it will still sound when certain selections (like FORMAT) are made. The duration can be set to 0 for complete silence, or up to a setting of 255. The normal setting is 32.

DefaultWriter Companion #2 (DWC2.BAS) lets you change the buzzer default for the AtariWriter+ PROOFREADER program. An added option lets you turn off the ARE YOU SURE (Y/N) prompt that follows a spelling correction. Proofreader will still check your new spelling against the dictionary, but you won't have to type Y after entering the word.

These two Companions will work on your original AtariWriter+ Disk—as did my original *DefaultWriter+* (*Antic*, July 1988) which lets you pre-program two different sets of defaults for instant loading. However, to be on the safe side, you should make one or two backup copies of your original AtariWriter+ disk, put the original disk in a safe place, and only work with the copies.

LISTING 1

Don't type the TYPO II Codes!

```
RH 1 REM ATARIWRITER DEFAULTWRITER (COMPA
   NION #1)
EP 2 REM BY PAUL V. ALHART
QR 3 REM (c)1988, ANTIC PUBLISHING
LP 5 ? "↖ This program lets you change th
   e      BUZZER Default settings for"
FO 6 ? "AtariWriter+ (48K Version).":?
UA 7 ? :? " Insert a copy of your AtariWr
   iter+    disk and press START":?
DC 8 IF PEEK(53279)<>6 THEN 8
RJ 10 TRAP 100:DIM IN$(1)
WW 15 CLOSE #1:OPEN #1,12,0,"D:AP.OBJ":NO
   TE #1,Q,W:S1=Q+105:S2=Q+122:B1=22:B2=8
   4
QE 20 POINT #1,S1,B1:GET #1,A:POINT #1,S2
   ,B2:GET #1,B:IF A<>0 AND A<>255 THEN 9
   0
EH 30 ? "↖The Default Buzzer setting is "
   ;A:? "     0 = OFF     255 = ON"
TR 40 ? :? "Buzzer Duration is set at ";B
   ;" JIFFIES":? "      NORMAL = 32"
WB 50 ? :? "Do you want to change these s
   ettings  (Y/N)";:INPUT IN$:IF IN$<>"Y"
    THEN CLOSE #1:END
QP 60 ? :? :? "Type 0 or 255 for Buzzer D
   efault":INPUT A:IF A<>0 AND A<>255 THE
   N 60
CS 70 ? "Type Buzzer Duration":INPUT B
UB 80 POINT #1,S1,B1:PUT #1,A:POINT #1,S2
   ,B2:PUT #1,B:GOTO 20
AY 90 CLOSE #1:? "USE WITH 48K VERSION ON
   LY◣"
GJ 100 CLOSE #1:? "ERROR ";PEEK(195)
```

LISTING 2

```
CN 1 REM PROOFREADER DEFAULTWRITER (COMPA
   NION #2)
EP 2 REM BY PAUL V. ALHART
QR 3 REM (c)1988, ANTIC PUBLISHING
MG 4 ? "↖ This Program lets you change th
   e     BUZZER Default settings and the"
PJ 5 ? "(Y/N) Prompt settings of PROOFREA
   DER    (48K ONLY!)"
WE 7 ? :? " Insert your disk and press S
   TART":?
DC 8 IF PEEK(53279)<>6 THEN 8
RJ 10 TRAP 100:DIM IN$(1)
IR 15 CLOSE #1:OPEN #1,12,0,"D:PROOF":NOT
   E #1,Q,W:S1=Q+27:S2=Q+27:S3=Q+38:B1=11
   7:B2=121:B3=35
GH 20 POINT #1,S1,B1:GET #1,A:POINT #1,S2
   ,B2:GET #1,B:POINT #1,S3,B3:GET #1,C:I
   F C<>32 AND C<>96 THEN 90
IC 30 ? "↖The Default Buzzer setting is "
   ;A:? "     208 = OFF     240 = ON"
TR 40 ? :? "Buzzer Duration is set at ";B
   ;" JIFFIES":? "      NORMAL = 32"
RL 45 ? :? "The (Y/N) Prompt is ";C:? "
     32 = ON       96 = OFF"
WB 50 ? :? "Do you want to change these s
   ettings  (Y/N)";:INPUT IN$:IF IN$<>"Y"
    THEN CLOSE #1:END
AR 60 ? :? :? "Type 208 or 240 for Buzzer
    Default":INPUT A:IF A<>208 AND A<>240
    THEN 60
CS 70 ? "Type Buzzer Duration":INPUT B
TJ 75 ? "Type 32 or 96 for (Y/N) Prompt":
   INPUT C:IF C<>32 AND C<>96 THEN 75
UO 80 POINT #1,S1,B1:PUT #1,A:POINT #1,S2
   ,B2:PUT #1,B:POINT #1,S3,B3:PUT #1,C
SI 85 GOTO 20
CA 90 CLOSE #1:? "USE FOR 48K VERSION ONL
   Y◣"
GJ 100 CLOSE #1:? "ERROR ";PEEK(195)
```

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